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Editor :
SUTINDER SINGH

11 JAN 1989
C.F.T.R.I., MYSORE

Behavioural Deviation Among Students

R.R. Sharma*

Our educational institutions are helping fast growth of behavioural deviations among students at higher level. Cook (1981) was possibly correct when he observed that educational institutions have become a weak and colourless replica of social life after the movement to liberalize education was observed as a fashion. The incidence of mass-movement in the campuses are probably less dangerous and less effective, for these contribute in purifying institutions from all accumulated sloth and administrative aberration. But the incidence of the addiction to alcohol, narcotic and other intoxicants that are enjoyed in solitude not by common students but usually by superior students is a dangerous trend that might affect the entire social life gradually in such a manner shat social deviations might become an essential part of social life. It is interesting and annoying both that the occurrence of theft, moral turpitude and experimentation with taboo behaviour is fast becoming a fashion with the adolescents. It seems as if not only administrative controls have failed but the social control indicators are being ignored and sometimes demolished. Similar sentiments have been expressed by Hall (1981), Bard (1981), Rollin (1982), and Jayasuria (1982) who had conducted a series of studies on adolescent-culture sponsored by American Association of College Education, Washington since 1980. It is alarming that the students of higher education are socially less responsible and behaviourally less cultured. It seems as if in Goen's (1982) terms the light is fast fading away from light houses.

Although the homogeneity in terms of social class, educational aspirations and a level of socio-cultural development is hard to locate in the expanding educational campuses currently, yet the collective pressure which contributes in giving a semblance of a class to the students studying in one institution is also non-existent. It is because the students belonging to different socio-cultural backgrounds congregate the campuses with cross-purposes. Lulla (1973) was correct when he interviewed a large section of students and come to this strange conclusion that either our adolescents do not understand the purpose of their education or they have so many purposes that they fail to realize even one. Similar observation was made by King (1965) when he conducted a very comprehensive comparative study of various educational systems. He observed that educational campuses in developing countries are the living confusions of national aspirations. Cormack (1962), too, had similar conclusions when she conducted interviews with nearly 200 sub-urban students. Thus, it can safely be said that in the absence of institutional press and individual motivation for higher ends of life, an active and energetic adolescent has no option but to lapse into activism or alienation. In this context, it will not be out of place to make a passing observation about those theoretical orientations in which activism and alienation in academic campuses have been identified as expressions of disorganization in the larger social set-up.

There is qualitative and quantitative difference between the effect of social control and the institutional control. Social control fails when social norms become ineffective in guiding the social behaviour, whereas, institu-

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tional control fails when the controlling rules and regulations are not put into the operation. Thus, it will be wrong to say that these behavioural deviations are the parts of larger social deviations. However, it can very well be admitted that our institutional set-ups are not properly coordinated without social organizations. This discordance between primary and secondary institutions can be safely postulated as a source of institutional deviance. This theoretical dimension needs thorough investigation. This postulate is being advanced in view of two general observations. Firstly. Indian institutions were organized and fashioned to serve the needs of its alien ruler in the past due to which the institutions function even today as if serving others than their own clientele. This fact indirectly ignored the needs and aspirations of the people in general. Sharma (1980) was aptly authentic when he characterized Indian institutional set-up "alien ethos-oriented." Secondly, educational institutions are so managed that individual initiative fails to get any expression; specially the campuses of higher education are devoid of minimum physical and human facilities due to which many students fail to get proper attention at proper time. In Danial's (1979) term "deprived and ignored multitudes of young aspirants have no option but to wage a war against institutions which allured them to come in but failed to respond to their needs". Thus, it can safely be said that the causes of deviance at behavioural level are to be identified within the parameters of institutional operations. The suggestions given below are in that perspective.

Suggested Institutional Modifications

(1) It is usually argued that the institutions of higher learning must operate at democratic level. Democracy implies not in perceptual equalization of rights and responsibilities but operational actualization of these. But it is not so, and resultantly, there is general discontent simmering in every soul. Probably, the cause can be identified in very few and narrow avenues of expression of different needs available in educational campuses. So every college of higher education should strive at organizing wider and extensive opportunities of expression so that no student feels deprived.

(2) The academic programmes at higher level are highly colourless. Colourless in the sense that students fail to relate their relevance to actual life situations. He does not even understand the indirect effect of a particular subject area of his career choice. For a lay man entire academic matrix is devoid of life spark. Thus, the student enters into campus without a purpose, pursues his operation without a purpose and faces life thereafter without any meaningful aim. This gloomy spectacle deters him from harbouring any aspiration. Brook (1977) characterized the universities of India as 'glorified abodes of aspiration nirvana'. Thus, keeping in view this situation, there is an urgent need of educational guidance and counselling agency in every campus. This agency will not only help the student in understanding his own potential and making proper adjustment to the institutional requirement, but it will assist him in understanding the meaning and purpose of his academic pursuit. Perhaps with these types of counselling services, a programme of fashioning students' aspirations at the realistic level can be initiated which will ultimately withhold them from entering into the unwanted or undesirable behavioural mode.

(3) Since 1960 a debate is going on whether students should be given proper representation on decision-making bodies of the colleges and the universities. This has originated because of recurring turmoils and realization on the part of the authorities about its failure to respond to the needs of the students. But so far nothing has happened. On the other hand, there is a definite growth of awareness amongst the students about the corrupt and unethical practices of administration. It is a general observation that students are highly suspicious about the role of the authorities. In this context, a suggestion, to allow participation to the students in administration, needs no emphasis.

(4) There is open door policy in higher education, which has helped in accelerating the growth of numbers. But this has had adverse effect upon the quality, and this realization of deteriorating quality is nationwide. Yet no attempt has been made to make any reform in the situation. Consequently, there are students varying not only in their socio-economic background but in aspirations, achievement motivation and needs. Educational campuses function in such a manner that this variance diminishes to such an extent that intra-individual competition is almost at the zero level. The content of individual aspiration also fades away with the lapse of time. Keeping in view the situation, it is suggested that some group treatment at academic level should be arranged for those who are below average because of socio-cultural deprivation. Similarly, some enriching experiences are to be organized for accelerating the growth of creativity and achievement amongst the brighter students. Perhaps, a sense of competition might contribute in generating a really challenging climate which will keep them engaged in academic activity.

(5) Recent intervention of political parties in the educational institutions has succeeded in alienating the students from academic programmes. It is somewhat interesting to note that this also has undermined the academic leadership of teaching community on the one hand and has given the status of ideal leadership to the political leaders. This development has not only affected the academic life at the interaction level, but it has transformed its entire culture also. The simple psychological media of interaction based on dominance-submission matrix in the past has acquired dominance-aggression polarity. Consequently, aggression has acquired in-built status in our organizations which is expressed in activistic modes of behaviour. Those who fail to adopt this new culture, lapse in alienation. Thus, it can be said that irrelevant, irrational politicization of academics has given rise to activism and alienation. In this context, the suggestions made by some eminent scholars and administrators to start a process of depoliticalization of academic campuses is a futile one displaying a very narrow range of their thinking. In a democratic milieu, keeping people away from political life is unthinkable. The real genius of a democratic set-up lies in organizing different aspects of an organization in such a manner that groups do not arrogate authority not assigned to them, but realize their interest in such a manner that authority facilitates in realizing their goals. In order to make this modification in administration, a threadbare analysis of our academic authority is needed.

(6) At the overt level, there is little difference between the institutions of secondary education and higher education. But at the covert level, there is vast difference between the culture, demands and behavioural dynamics of both the types of institutions. But in Indian system, there is no media to effect enculturisation amongst the new enterants at the cultural level, and unfortunately, the fluctuations and uncertainty are so confusing that for months together a student fails to find his own identity in the new environment. This lost identity creates a psychological vacuum in his personality which he likes to fill up with either activism or alienation. Although this is the world-wide phenomenon, yet in terms of Erikson (1980) this can be contained with the help of personal and psychological guidance to the adolescents. So the new entrants should be provided with the provisions of psycho-personal guidance in order to save them from the unhealthy effects of indentity crisis.

(7) It has been observed that adolescents usually deviate to undesirable activity when their energies and potentialities are not put to proper utilisation. This seems to be realistic observation, because our academic life is punctuated at three points—admissions, closures and examinations. Between admission and examinations, a long span of time is available to students which is not utilized in any challenging activity. On the other hand, course-content at every level is so soft and narrow that it can be easily covered within 20 days. In such a situation if students make diversion to employ their energies, then probably, it is not their fault. It is unfortunate that at the higher level many wonderful suggestions have been made from time to time to improve academic contents of graduate and postgraduate levels, but at the implementation level, the results are frustrating. So a suggestion can be made here in this connection to item-analyse the whole content in relation to the

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time perspective and average capacity of a student so that he may be kept engaged meaningfully.

(8) A peculiar trend that has rcecently emerged because of the reactions against the policy of reservations has imperceptably affected the psycho-social characteristics of general behaviour. A new awareness of scarcity of placement opportunity in the job market has generated a feeling of frustration amongst the aspirants due to which they have started feeling a vacuum which they feel they would face in future. It has been pointed out by sociologists that the constitutional provisions of reservations and priorities have not only threatened the general masses, but even the social system, and whenever system is put under stress or disturbed by compulsive provisions, it is expressed in intra-group rivalry, frustration, anti-social behaviour and violence. Probably, activism and alienation are symptoms of the same cause. If it is so, then a suggestion, which is being usually voiced in a very low tone, can be made : weaker sections or socio-economically deprived sections can be given a supportive treatment by the society. But it should not be allowed to go ahead without social competitions. Similar trend has been noted in some African countries where other provisions had been withdrawn in order to safeguard the social integration (Holms, 1977).

Suggested Modifications in Theoretical Framework

The theoretical framework advanced by social scientists as yet in the field of student activism and alienation is very weak. Weakness, probably, arises out of the context in which these concepts have been developed. Both the concepts originated because of industrialization. Large labour organization had acquired a militant tone with the rise of Marxist philosophy and communistic orientation. The basic conflict revolved round the interactional matrix of capital ownership and labour. The logic that is usually given, on the face of it, is very simple. The capitalist employs the capital, and the formation of capital is because of the labour. But the capitalist does not like to pay to the labour even its actual price due to which the capitalist becomes richer day by day and the labourer poorer day by day. Activism or alienation generates in labour because of the awareness of the power and force of their contribution in capital formation. But the situation does not obtain in educational campuses. Because the teaching class involved in managing the knowledge does not have any hesitation in imparting as much knowledge as required by the students, still the students indulge in activism. The only aspect, that seems to have entered from the labour force into educational campuses, is the hostility towards authority. Resultantly, entire activistic movement revolves round the authority syndrome. Hence, it is being felt that analysis of activism ought to be taken up with the help of the analysis of authority system. It can be stated safely that the activism, in educational campuses, generates out of the conflict between power and authority.

Power and Authority Conflict

In very technical terminology, power is attained, whereas authority is ascribed. A student leader attains popular power through his leadership dynamics. He indicates his points of argument in reference to the power that he wills. An authority and position-oriented person who becomes the principal automatically assumes the authority of a principal. In educational campuses a student wants to modify the character of the authority in order to make it convenient to his student group, whereas, the administrator tries to defend the authority and strives to keep it intact. This conflict emerges in activism. Thus, the intensity and coverage of activistic behaviour should be analysed with the help of authority power dynamics in educational campus. ☐

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Information and Documentation Work Vis-a-vis the Humanities in India

L.S. Ramaiah*

Introduction

The ancient concept of *Vasudhaiva Kutumbhakam* speaks of the oneness of humanity. Similarly the unified theory affirms the oneness of human knowledge. The various elements of knowledge are inter and intra connected. John Locke stated that "all knowledge comes from sense experience". Even a modern seminal thinker like Jacob Bronowski in his book *Science and Human Values* states that "the poet as much as the biologist now believes that life speaks to him through the senses." It is thus evident that all human gnosiology, either scientific or otherwise, is derived through the human senses.

The Universe of Knowledge, in spite of its oneness, is divided for classificatory and practical purposes into three major divisions, viz., the Humanities, Social Sciences and Natural Sciences. These divisions are further separated according to literary warrant into subjects and sub-subjects or foci. The Humanities thus constitute one of the major divisions of the human knowledge.

The Humanities

For several centuries, and until quite recently, the humanities, were acknowledged as the foundation, source and propaedeutic, not only for school teachers, scholars and professors, but for those who came to play an active part in the life of society, in public service, in government, the law, and other learned professions. Persons educated in the humanities have for a long time been sought out for their intellectual and moral qualities—as administrators, and leaders in government and university, as directors in industry and also in highly technical fields. E.H. Gombrich has, therefore, rightly said that the purpose of humanities that of "recovering, preserving and interpreting the cultural heritage of mankind." But in this century the position and status of the humanities has completely changed. They have come to be held in lower esteem and are seen to be ineffectual, obsolescent, of slight relevance to modern conditions. Though the Natural Sciences and Technology have come to occupy the centre of the stage, the importance of the humanities has not been completely vanquished. If the humanities or the human studies are important to man, naturally the question which stares at us is what are the Humanities ?

What Constitutes the Humanities

The definition of the Humanities is always a debatable question. The enumeration of the subjects that constitute the Humanities division of the Universe of Knowledge has been variously stated by various authorities. The U.S. Congress while establishing the National Endowment for the Humanities defined the Humanities as follows : "Humanities includes, but is not limited to the study of the following : Languages, both modern and Classic; Linguistics; Literature; History; Jurisprudence; Philosophy; Archaeology; The History; Criticism, theory in practice of the Arts; and those aspects of the Social Sciences which have humanistic content and employ humanistic methods."

The *Arts and Humanities Citation Index* lists the following subjects under the Humanities :

1. Architecture 2. Art 3 Classics 4. Dance 5 Film, T.V. and Radio 6. Folklore 7. History 8. Linguistics 9. Literature 10. Music 11. Philosophy 12. Theatre and 13. Theology and Religious Studies, whereas the University Grants Commission, New Delhi, considers the following subjects as constituting the Humanities :

1. Classical Languages; 2. Modern Languages; 3. English and Foreign Languages; 4. Linguistics; 5. Philosophy; 6. History; 7. Art History; and 8. Museology.

As seen from the three practices stated above, the Humanities have been variously listed. It is highly debated whether some of the above subjects come under the Humanities or Social Sciences. Hence, the definition of the Humanities and its boundaries are fuzzy. Prof. S.R. Ranganathan in one of his papers at the Seminar on Social Sciences in 1960 discussed at length about the nature of the disciplines like Linguistics, Religion, Fine Arts Literature and Philosophy and labelled them as 'amphibious disciplines."

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Position of the Humanities in India

India is a land of many races, languages and literatures. This plurality is reflected in a multitude of fields like religious beliefs, customs, philosophy, historical tradition, art and architecture. The sub-continent is still in the process of integration for oneness but the diversity in unity is an accepted fact.

A plethora of these subjects, with their multitudinous facets, form an important segment in our University Education. Out of 160 Indian Universities, except the Universities, completely devoted to subjects like Agriculture and Technology, all of them have departments for the study of Languages, Literatures, Philosophy and History. An idea of research in the Humanities can be had from the number of Doctoral Dissertations accepted by the Indian Universities as shown in Table 1.

Table 1 : **Number of doctoral dissertations accepted by Indian Universities during the period 1857-1970.**

Area	Number of Dissertations Accepted	%
Physical Sciences	8062	39.24
Biological Sciences	4197	20.46
Humanities	5415	26.42
Social Sciences	2819	13.76

The above table reveals that about 60% of research is done in the area of physical and biological sciences, followed by the humanities with 26%. Another indicator of the importance given to research in the Humanities by the highest body for the Higher Education in India is shown in Table 2.

Table 2 : **Number of major research projects approved by UGC during the period 1974-75—1982-83.**

Area	No. of Major Research Projects Approved
Humanities	224
Social Sciences	117
Professional Subjects (e.g., commerce, business management, teacher education, etc.)	68

The above two tables drive home the point that the Humane studies play an important role in our Higher Education. Further, outside the Universities, the Humanities have been studied and researched at the Institutions and organizations like central and state Sahitya, Sangeeta Nataka Akademies, Central Hindi Institute, Central Institute of Indian Languages, Central Institute of English and Foreign Languages, Indian Council of Historical Research, National Museum and a host of others.

Besides research scholars and teachers, there is a vast reading public and artists, painters, architects, historians, biographers and spiritual seekers who need continuous information in their own subject fields. Do these seekers and users of information have easy access to information? What are the facilities available to assist and help them in their information seeking behaviour at the national level ?

Position of Documentation Vis-a-vis The Humanities in India

Documentation is in a fledgling stage in India. Science and Social Science groups are better organized than the Humanities. They have all India bodies like CSIR and ICSSR at the National level to look after their development and coordination. INSDOC was established in 1953 with the UNESCO assistance to provide a full range of documentation services to the National Laboratories, Scientific and Technological Institutions, Universities, etc. In the field of science and technology it provides a variety of services viz. document procurement, bibliography and information, translation, Union catalogues, Indian Science Abstracts, Information retrieval, document delivery and Current Awareness Service There are also other bodies like BARC, DESIDOC, SENDOC, National Medical Library, National Agricultural Library and UGC Centre for Science which are supplementing the documentation services besides INSDOC in the field of Science and Technology.

The Indian Council for Science Research, set up in 1969 has taken up as one of its first tasks the establishment of National Social Science Documentation Centre. NASSDOC has been set up in 1972 with

Regional Centres at Hyderabad, Bombay, Calcutta, Chandigarh, Shillong and New Delhi to perform the specific functions of rendering documentation and bibliographical support to Social Scientists. During its existence for the last 16 years it has been proving a variety of services such as document procurement, union catalogues, abstracting of Indian Social Science periodicals, Document Delivery, Bibliographies, Reference, Consultancy, Directory of Social Scientists, etc.

The Humanities have no single coordinating agency at the national level like CSIR or ICSSR. It is hightime that there should be a Indian Council for Arts and Humanities Research (ICAHR) at the national level to coordinate, systemise, and develop the study and research in the field of the Humanities. Further the council should also set up a National Humanities Documentation Centre (NHDOC).

Science and Social Sciences alone will not make a progress. What about the progress to be achieved in the composite culture, national integration, languages and literatures, arts and history which are represented by the humane studies. Don't these subjects and subject specialists require information facilities and documentation services? Readers and users of information sources in these fields do not want to be morons living in a technological world. They have to play their living part effectively in creating a new world of tomorrow. Hence there is immediate need for the bibliographical control and documentation in the Humanities in India. Till now it is neglected and any further delay in this direction will result in lopsided growth in documentation and disturb the balance of information ecology.

Need for Documentation in the Humanities

The present century has witnessed an exponential growth of literature, both in the Humanities, Social Sciences and Sciences. It is no longer possible for any single library to acquire all the texts or books or documents published all over the world. This has radically changed the position of the scholarship in the Humanities also. Eugene Garfield in his preface to the *Arts and Humanities Citation Index* stated that :

(i) The Arts and Humanities, no less than the Sciences, need a large scale index that provides multi-disciplinary coverage;

(ii) An up-to-date service issued on a current basis and cumulated annually would be welcomed; and

(iii) There was widespread belief in the potential effectiveness of citation and title-word indexing in Arts and Humanities information retrieval.

There are many who argue that the Arts and Humanities don't require any documentation and what all they need is a good library collection. Hence the National Library can take care of the Humanities. It is a very spacious argument. We can extend the same argument for the Sciences and Social Sciences also. Therefore no credence should be given to such an argument particularly in India, where the National Library is almost defunct. Even other libraries with rich collections in the Humanities are functioning under severe financial constraints and their services are inadequate. The need and necessity for setting up a National Humanities Documentation Centre are :

(1) No single library, however, comprehensive its collection is, cannot meet all the requirements of the users.

(2) To preserve the composite culture of India and through it to strengthen the element of unity and harmony between the various languages, literatures and regional cultures and traditions.

(3) To encourage translations between the regional languages and literatures.

(4) To smoothen the language barrier and to develop and strengthen a common like language.

The proposed National Humanities Documentation Centre can undertake the following functions :

- Procurement and supply of documents
- Reference and information services
- Compilation of current and retrospective bibliographies
- Maintenance of Union Catalogue of periodcals
- Indexing and Abstracting Services
- Current Awareness Service through the Current Contents
- Providing translation services from Indian and Foreign Languages
- Preparation of Directories of Persons, Institutions.
- Support for the preparation of multilingual dictionaries in Indian languages
- Collection of the Research Dissertation in the Humanities

- Reporting of Research in Progress in the Humanities
- Provision of quick and efficient photo-copying and microfilming facilities
- To function as a clearing house for all information in the arts and humanities
- To act as the contact-point for cooperation with organizations and institutions with similar aims, both in India and abroad.

Conclusion

Even an ordinary assessment and evaluation of the national documentation scenario in India reveals the distressing situation of the documentation facilities for the humanities. The readers and scholars in these subject fields have to run from pillar to post in collecting information for their study and research. Their time and money is wasted in going around to various libraries in the absence of a National Documentation Centre for the Humanities which could be a rallying point for them. The present piece meal policy of documentation should be replaced with a holistic one in order to serve and assist all groups of users of knowledge for making their mind humane and supreme.

As an onlooker of the national scene of documentation, at times, the last words of Socrates come to my mind. These were his last words—'Crito, we owe a cock to Aesculapius, pay it and do not neglect it." Similarly, the fitting last words for this paper could be—*Authorities that be, We owe a National Documentation Centre for scholars in the Humanities, give it and do not neglect it.*

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Holy Cross College, Tiruchirapalli

S. Prabakar Immanuel*

The Bharathidasan University in their efforts to make higher education meaningful and contributive to the needs of the society established 3 years' bachelor's course in Rehabilitation Science. This course aims to develop teachers and workers of disabled children and adults. The Holy Cross College (Autonomous) Tiruchirapalli ventured to offer this course. These inter disciplinary courses are established focussing on providing services at grass-root, middle and top level in the field of disabled.

Today, this venture attempted five years back with the triangular partnership of Bharathidasan University, Tiruchirapalli, Holy Cross College and Christoffel Blinden Mission has blossomed into offering not only several courses at different levels but also providing direct services to disabled children and adults, and developing new conceptual model programmes.

The Department of Rehabilitation Science now offers 3 year bachelor's course in Rehabilitation Science, 2 year Master's course in Rehabilitation Science, one year Postgraduate Diploma course in Rehabilitation Management and 2 years' Associate Degree in Special Education. In addition, several short term training courses at national and international levels are planned and conducted. Regular seminars and workshops to teachers and workers of disabled is a special feature of this programme. The department trains not only future leaders but also the existing workers in the field of the disabled.

The department uses new methods of teaching where the students participate in discussions, seminars and in practical work. Several experts in the field share their experiences and expertise in the field with the students. The programme covers wide range of subjects such as normal development, deviations from normal development, psychology, aids, computers, assessment, rural development, special methods of training disabled, management aspects, applied areas of disabled, etc. The focus is on developing the full personality so that the students can understand the problems of the disabled and creatively serve them with commitment since the services to disabled should focus on the individual needs of the disabled.

The new concepts of services to disabled is being applied through service delivery programmes of the department.

This Department of Rehabilitation Science of Holy Cross College, Tiruchirapalli in their efforts to deliver services to disabled children and adults are organizing the following programmes :

1. Day school for hearing impaired at Tiruchirapalli.
2. School for hearing impaired at Vadugarpet.
3. Community Based Speech Training Programme in Mohanur area.
4. Integrated Education programme for visually Handicapped children.
5. Parental training programme for disabled children.
6. Speech training programme for hearing impaired children.
7. Diagnostic and Assessment centre.

In the area of speech training for hearing impaired children, the department is having diversified model programmes. In the model day school programme for deaf children, the students stay with the parents in their homes and attend training during school hours. The parents follow the speech training at homes. At the school for hearing impaired in the village Vadugarpet, the school is situated within a normal school and the students stay in the hostel of normal children. These children are integrated in certain classes such as Physical Education, Arts, Crafts, etc. In the community based speech training programme at Mohanur, field workers who have studied upto 10th standard are identified and trained to give speech training to children. These field workers visit the deaf children in their homes and provide them speech training. This programme is closely monitored by a speech therapist who guides them in service delivery methods. These model programmes are closely monitored and evaluated by the department of Rehabilitation Science in order to assess their effectiveness. More than seventy five hearing impaired

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**Professor and Head, Department of Rehabilitation Science, Holy Cross College, Tiruchirapalli-620002.*

children are directly benefited by these programmes. All the children identified received hearing aids as part of the training programme.

All the children undergoing training have Psychological, Audiological and vision assessment. Individual educational plans are made based on these assessments. The focus is on providing language and communication skills so that the children can be integrated in the society.

Some of the children who could not be admitted in the regular programmes in schools due to age, programmes are designed on individual basis to give them language and communication skills. In such programmes the parents or a volunteer worker is trained in speech training methods and speech training is given at homes. This is closely monitored by specialists from the Department of Rehabilitation Science.

The New Education Policy 1986 and the Programme of Action envisages education for the handicapped with normal children in normal schools. This is now termed as Integrated Education. The Visually Handicapped Children after assessment are admitted in a normal school at a village Vadugarpet for educational purposes. These children stay in the hostels of normal children and are educated with other normal children. They have the support of a special teacher known as Resource Teacher for special needs such as braille, daily living skills, mobility, textual materials, etc.

In all the programmes of the Department of Rehabilitation Science only students trained at the Department of Rehabilitation Science and having the Bachelor's degree in Rehabilitation Science are working. The students after their degree continue to work in the field of disabled providing direct services to the disabled adults and children. More than one hundred disabled children are directly benefited through this programme of higher education training. These extension programmes are also used as training centres for the students of Department of Rehabilitation Science.

The Community Based Speech training programme is the first of its kind in India, wherein the focus is on providing skills of communication so that the children can be gainfully employed in their villages. One of our students who had completed MRSc had agreed to stay in the village itself to coordinate and guide the programme.

The programme is designed in such a way to involve the local community and leaders in the implementation process. The authorities of local sugar factory, Panchayat Presidents, teachers and parents are involved in the programme.

Rehabilitation Services are provided to the disabled adults in a cost effective way. The disabled adults after assessment are given specific training focussing on vocational placements. Using the community resources, training is given and the placements are done using the family and community as base. □

76th Session of Indian Science Congress

The 76th Session of the Indian Science Congress will be held at the Madurai Kamaraj University, Madurai from 7-12 January, 1989. We publish below the life sketch of Dr. A.P. Mitra, Director General of CSIR, who has been elected as the General President of this session. The names of Sectional Presidents are also published.

Dr. A.P. Mitra, General President, 76th Indian Science Congress, was born in 1927. He received Master's and Doctorate Degrees in Physics from the Calcutta University. He has held assignments in Colombo Plan, Australia and in Pennsylvania State University. He joined CSIR in 1954. He became Deputy Director, National Physical Laboratory in 1966 and later became Director in April, 1982. Since Feb. 26, 1986 he is Director General, CSIR and Secretary, DSIR.

Dr. A.P. Mitra, General President

Dr. Mitra's activities cover: atmospheric environment, radio communication, ionospheric physics, atmospheric chemistry and space research. His pioneering work on the use of cosmic radio noise for studies of the upper atmosphere resulted in a whole series of scientific discoveries in ionosphere, solar physics and cosmic rays. He introduced new techniques of detecting solar flares including the use of cosmic radio noise and of analysis of flare effects of the atmosphere. In 1979 he was awarded the prestigious Jawaharlal Nehru Fellowship. As Jawaharlal Nehru Fellow, he undertook a new work on changing environment, from both natural and human influences and brought out a monograph on "Human Influences on Atmospheric Environment".

Dr. Mitra has been recipient of many honours. He was elected Fellow of the Indian National Science Academy in 1961 and the Indian Academy of Science in 1975; Honorary Fellow of National Academy of Sciences; Fellow of Third World Academy of Sciences (TWAS) in 1988; was elected Corresponding Member of the International Academy of Astronautics in 1963 for 'distinguished contribution to space science', and later a full Member of the Academy. He was given the Shanti Swarup Bhatnagar Memorial Award for Physical Sciences for the year 1968; Dr. K.S. Krishnan Memorial Lectureship of the Indian National Science Academy in 1975; FICCI Award for Physical Sciences for the year 1982; C.V. Raman Award of 1980 and Shri Om Prakash Bhasin Foundation for Science & Technology Award for Electronics and Telecommunications for the year 1987. He was elected Vice-Chairman of Commission G of the International Scientific Radio Union (URSI) in 1975 and the Vice President of the URSI in 1978, and again in 1981; and elected President, URSI, 1984-87.

He has served on many national and international bodies including COSPAR. He is on the Editorial Boards of leading national and foreign professional publications in the field of solar terrestrial physics. He was elected to the Royal Society (FRS) in 1988.

Dr. Mitra has published about 160 scientific papers and has written a book on 'Ionospheric Effects of Solar Flares' which has since been translated in Russian. He has also edited several international volumes, including Space Research Volume 8 and the Publication 'Advances in Space Exploration' brought out by Pergamon Press in 1981.

SECTIONAL PRESIDENTS

Mathematics : Dr. N. Rudraiah, Head, Department of Mathematics, University of Bangalore, Bangalore.

Statistics : Prof. S.K. Chatterjee, Department of Statistics, University of Calcutta, Calcutta.

Physics : Dr. K. Rai, Executive Member, Indian Society of Atomic and Molecular Physics, Calcutta.

Chemistry : Prof. P.C. Gupta, Department of Chemistry, University of Allahabad, Allahabad.

Geology and Geography : Prof. M.N. Mehrotra, Department of Geology, Banaras Hindu University, Varanasi.

Botany : Prof. R.P. Purkayastha, Department of Botany, University of Calcutta, Calcutta.

Zoology, Entomology & Fisheries : Prof. V.C. Shah, Department of Zoology, Gujarat University, Ahmedabad.

Anthropology & Archaeology : Prof. A.R. Banerjee Department of Arthropology, University of Calcutta, Calcutta.

Medical & Vety Sciences : Dr. B. Dattachaudhuri. Department of Physiology, University College of Medicine, Calcultta University, Calcutta.

Physiology : Dr. H. Chattopadhyay, Asstt. Prof. of Physiology, Presidency College, Calcutta.

Psychology & Educational Sciences : Dr. V.P. Sharma, Prof. & Head, Department of Psychology, Ravishankar University, Raipur.

Engg. Sciences : Dr. H.B. Lal, Chairman, Technical Activities Committee, Bihar State Centre of the Institution of Engineers (India), Patna.

UGC Guidelines for Teaching and Related Matters

The University Grants Commission had circulated in January 1984 certain guidelines regarding minimum number of actual teaching days in an academic year in Universities/Colleges, minimum programme of Examination Reform in Universities and workload of teachers in universities and colleges. These guidelines also form part of regulations since November 1985. At a recent meeting of the UGC, these guidelines were again considered and it was decided to bring the same to the notice of the universities again. The guidelines circulated to universities are as follows.

(A) Working Days

The number of actual teaching days in an academic year in a university/deemed to be university/constituent/affiliated colleges of the university should not go below 180 days excluding the preparation days and examination days. These are days on which classes such as lectures, tutorials, seminars, laboratories are/or may be conducted. Holidays cannot be counted although students may be studying in their homes or hostels or may even be informally consulting teachers. The time taken up for admissions i.e. when the classes are not formed, to start work, time meant for examinations or for preparing for examinations cannot be counted. It would be desirable for universities to make an effort to raise the number to 200 or more. The Universities should budget their time in regard to work, and holidays. For example, admissions should be completed by the last day of the long vacation. Examination results should also be compiled and announced during the vacations to enable admissions to take place. In a semester pattern, examinations should not be so prolonged as to take away more working days—there could be more reliance on internal assessment, examiners of first semester could be internal, so that the short vacation can be utilised for evaluation. The universities should also see that a working day in a department or faculty does not become just a few hours of the forenoon. The time table should be spread to accommodate the various academic activities over at least on 8 hours working day.

The University should also insist that the manner of conducting a course is also spelled out. The number of lectures, tutorials, seminars, lab-sessions, etc. normally adequate for each course should be worked out and preferably made known in a handbook of courses. If students cut classes, or if working days are otherwise disrupted, it should be made clear that only when the norm is reached will there be examinations. This also involves disciplined regular work on part of the teachers—which should be ensured. Every item in a given syllabus may not have to be taught in the class as a pre-requisite for the examination, but on the other hand it would be counter productive to hold examinations on reduced courses because the number of working days has been curtailed in a particular situation. If this happens, examinations will loose their credibility, students will perform poorly in competitions and interviews, and if they are admitted to the next class its standards will also suffer.

(B) Minimum Programme of Examination Reform

Every university/deemed to be university shall have to adopt the following minimum examination reform.

Syllabus/Question Paper

(a) The syllabus in each paper should be demarcated into well defined units/areas of content alongwith a topic-wise breakdown. The units may be numbered.

(b) Examiners should be free to repeat questions set in a previous examination. This is necessary in order to ensure that students do not leave out important portions of the syllabus. Instructions to paper setters should be amended accordingly.

(c) There is often a very wide choice given to students for answering questions, say 5 out of 10. Such overall choice restrict the area of knowledge with which a student can pass an examination and is therefore undesirable. If there is choice, it may be provided by alternate questions in each unit of the syllabus.

(d) No examination should be held without fulfilling the requirement of a minimum number of lectures/tutorials / laboratory sessions, etc. which should be clearly laid down by the university.

(e) Examinations should be conducted in fair and impartial manner. Cheating in examinations is a cognizable offence. Universities must take all steps for the proper canduct of examinations such as effective security measures, proper supervision and invigilation, cordoning off the examination centres from the range of loudspeakers and other interference, flying squads and stren action in all cases involving copying and use of unfair means.

(C) Work Load of Teachers

The work-load of various activities should be not less than 40 hours a week for a teacher who is in full time employment. (Any good teacher, particularly one who is involved in creative activity and who has a spirit of challenge towards giving his best to the students, would certainly spend much more than 40 hours a week in academic pursuits).

The breakup of work load shown below is for the sake of example. It is not a rigid breakup. But, every teacher could be given duties according to some such general pattern and no one should have a significantly reduced load :

1. Undergraduate College

(a) Lecturers in Non-laboratory/ Field work subjects

Activity	Average No. of hours per week
i. Teaching	16
ii. Testing/Exams	2
iii. Tutorials	4
iv. Preparation of Teaching	10
v. Supervision of extra-curricular work	4
vi. Administrative Work	4
Total	40

Where extra-curricular work or administrative work is not assigned or unfortunately tutorials do not take place, teaching work may be slightly increased, but as far as possible a teacher should not have to teach or lecture more than three hours per day.

(b) Lecturers in Science Subjects or where field work is necessary

Activity	Average No. of hours per week
i. Teaching	16
ii. Lab. work	4
iii. Testing/Examinations	2
iv. Teaching preparation and lab-setting	12
v. Administrative activities	4
vi. Extra-curricular activities	2
Total	40

2. Lecturers in PG Colleges/ Universities.

(a) Lecturers in non-laboratory/Field work subjects.

Activity	Average No. of hours per week
i. Teaching	10
ii. Testing/exams	1
iii. Tutorials	4
iv. Preparation for Teaching	10
v. Research	10
vi. Own Reading/ Studies	5
Total	40

(b) Lecturers in Science Subjects or where field work is involved :

Activity	Average No. of hours per week
i. Teaching	10
ii. Testing	1
iii. Laboratory work	4
iv. Teaching preparation and lab-setting	10
v. Research	10
vi. Own Reading/ Administrative work	5
Total	40

Teaching combining Undergraduate and Postgraduate teaching will have a position in between (1) and (2) above.

(c) Senior teachers like Readers and Professors, in addition to their own research work guide and supervise a fairly large number of students for M.Phil./Ph.D. Degrees. They have also to attend consultative meeting of various organisations, sometimes related to teaching and sometimes to research. Therefore, it is felt that their direct teaching responsibilities may be slightly curtailed allowing them a greater portion of time for guiding and supervising research work. However, to the 10 hours of research per week on the average, it should be possible to add not more than 4 hours, bringing the total of research to 14 hours per week. This again implies that the number of students to be supervised should be limited to perhaps 4 to 6, and that senior teachers should be able to assign specific time to each scholar whose work they are supervising.

It is also felt that with 14 hours for research and 5 or 6 hours for reading and study and perhaps another 5 hours for extra-curricular or administrative work, senior teachers should be able to put in about 8 hours of teaching and laboratory work including testing and about 8 hours for preparation of teaching work. Teachers not having such extensive research responsibilities should put in more teaching work. Ordinarily a teacher may not have more than two postgraduate theory courses to teach with some laboratory or tutorial responsibility.

It is further observed :

(i) That young people are given enough time to help in their professional growth and achievement of academic excellence particularly in the initial years of their service;

(ii) that teachers guiding research students have adequate time to look after them; and

(iii) that 'Pleasant' as well as 'unpleasant' work is shared by all teachers.

In case a certain teacher likes to have an extra load at a particular time in the year, and compratively less teaching work at some other time during the total academic year, this should be accommodated, if it does not cause any serious difficulty in the teaching programme of the department. Where teaching is organised in semesters and terms such adjustment could be made in the corresponding period, provided the teacher has given adequate notice to the university.

The underlying principle being that the maximum workload should be the same in all departments and for all teachers. In postgraduate centres where considerable research activity is envisaged it is obvious that the direct teaching of the staff will be reduced and the staff will accordingly devote the remaining time for active research.

Teachers should spend a certain amount of time every day in the department/college whether or not they have direct teaching duties on certain days. If facilities are provided, preparation for teaching can mostly be done in the department/college, This is so as to ensure that a teacher is available for his students if they need his help, and that a teacher is also available when he is needed for consultation or discussion on various matters that come up in institutions. ☐

NATIONAL BOARD OF EXAMINATIONS

FOR THE ATTENTION OF CANDIDATES TAKING N.B. EXAMINATIONS

The National Board of Examinations is an autonomous body established by the Government of India in the Ministry of Health and Family Welfare to conduct Postgraduate examinations in various medical disciplines. Successful candidates of the Board's examinations are awarded the Diplomate (of the National Board in the speciality concerned) qualifications which is equivalent to Postgraduate (in the case of Broad Specialities) Postdoctoral (in the case of Higher Specialities) qualifications of the Indian Universities.

The board has decided to make some changes in the admission requirements and pattern of primary examinations. Commencing from the next examination of the Board to be held on 7th and 8th August 1989, there will be common primary examination for the specialities of :

Anatomy, Physiology, Pharmacology, Pathology, Microbiology, Biochemistry, Forensic Medicine, General Medicine, Paediatrics, Psychiatry, Anaesthesiology, Radio-Diagnosis, Radio-Therapy, Dermatology & Venereoogy, Dermatology, Respiratory Diseases, Nuclear Medicine, Aviation Medicine, General Surgery, Obstetrics & Gyneacology, Ophthalmology, Orthopaedic Surgery, Otorhinolaryngology, Physical Medicine & Rehabilitation, Social & Preventive Medicine, Maternal Child Health, Health Administration including Hospital Administration and Family Medicine.

Candidates who have completed their internship are eligible to take the primary examinations.

The Board have also decided that candidates possessing Postgraduate degree in any subject recognised by the MCI can appear in the final examination of the board directly, after obtaining the necessary exemption and if otherwise eligible.

The information booklet and application form can be had from the **Assistant Registrar (Exams), National Board of Examinations, Ansari Nagar, New Delhi-110029 on or after 1st February, 1989.**

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National Conference on Biomechanics

The First National Conference on Biomechanics (NCB) was organised on 17-18 December, 1988 by the Centre for Biomedical Engineering, Indian Institute of Technology, Delhi. The conference had the twin objective of bringing together researchers in the field of biomechanics in the country who have so far been working in isolation and to provide a forum to discuss their research findings with specialists in other areas such as medicine, pure science, engineering, etc.

The deliberations were divided into ten sessions, covering Biomedical education, Biofluid dynamics, Orthopaedic and Sports biomechanics, Ergonomics, Physiological systems and Biomechanical modelling. NCB also discussed the applications of biomechanics to rehabilitation of disabled and adaptation to high attitude stress. Each session was initiated by a keynote address delivered by an eminent specialist in the area, which set the trend of scientific presentations and discussions.

The most important outcome of the conference was the formation of the Indian Society of Biomechanics. It was felt by the conference delegates that a forum should be established for promotion of : (i) Interaction among clinicians, medical scientists, sports professionals, engineers and pure scientists for the solutions of biomechanical problems; (ii) identification of thrust areas in the field of biomechanics, keeping in view the socio-economic background of India; (iii) research and development of rehabilitation aids and artificial organs for the disabled; and (iv) research in sports biomechanics so that atheletic standards in the country could be improved.

It was also emphasized that the Indian Society of Biomechanics should arrange short term courses, workshops, lectures, national and international conferences, institute awards for outstanding work in bio-mechanics and to develop a sound biomechanics curriculum in the medical and engineering education at undergraduate and post-graduate levels.

Over 100 specialists from eminent organizations such as IITs, NITIE, Bombay, Banaras, Bangalore, Delhi, Calcutta University, HBTI Kanpur, AIIMS, New Delhi, IISc, Bangalore, etc. participated in the conference at which 80 and odd scientific papers were presented. In terms of speciality coverage of the papers, there were 35% from engineering, 25% from pure sciences, 30% from medical and clinical sciences and 10% from sport sciences.

AUPELF Meets in New Delhi

The Jawaharlal Nehru University, New Delhi, hosted the fourth World Congress of Department of French Studies under the aegis of the Association of Universities where French is taught or is a medium of instruction (Association des Universities Partiellement on entierement de langue francaise, AUPELF).

The main theme of the Congress was the role of universities in development, in the specific context where French is the vehicle and the instrument of communication. It laid emphasis that the teaching and learning of French could play a part in raising awareness of the issues of progress and change and in contributing to their problem-solving in a comparative framework.

AUPELF came into existence in 1961. It is a multi-disciplinary international forum with a world-wide membership of 180 universities and 400 Departments of French Studies. It seeks to offer a permanent platform for University Institutions to evaluate and assess the role of universities in national and international life and their role in promoting socio-cultural development of their respective societies.

Participating in a working lurch, Prof. S.K. Agrawala, Secretary, Association of Indian Universities, discussed the question of developing relations between AIU and AUPELF.

Prof. N.M. Swani, President, AIU who co-hosted a dinner in honour of the delegates of the Congress at the India International Centre on December 19, 1988 met participants.

Delegates from sixty countries in the world, where French is the medium of expression at the university level, participated in the Congress.

Prof. K.J. Mahale, Vice-Chancellor, Manipur University, was re-elected as President of the Asian Regional Committee of AUPELF for another term of four years.

The AIU also displayed its publications on this occasion at Hotel Le Meridian, New Delhi.

Advanced Training Course on Nematode Pest Identification

The First All India Advanced Training Course on Nematode Pest Identification was organized by the Department of Zoology of the Aligarh Muslim University recently. About 20 participants from different parts of the country attended. The resource personnel included top nematologists of the country.

The aim of this course was to help nematode research centres overcome the problems of nematode identification. Plant parasitic nematodes cause excessive damage to crops and are considered serious pests like the insects. These nematodes which are exceedingly small in size, inhabit the soil and attack mostly the plant roots. They are cosmopolitan parasitising all types of crops the world over.

The smallness of the namatodes and the minuteness of their diagnostic characters cause excessive limitations on the correct identification of their species. To develop an ability and expertise in identifying the species of nematode pests, a thorough knowledge of their structure and systematics is essential. Without correct identification of a species, work on its biology and control may be meaningless and a lot of energy and effort can go waste.

Prof. M. Shamim Jairajpuri, Chairman of the Zoology Department, was the Director of the course.

AMU Lecture on Nehru and Indian Science

Professor Syed Zahoor Qasim, Secretary, Department of Ocean Development said that India was the first country in the world to have received the status of a "registered pioneer investor" in the field of ocean development. He was delivering a lecture on "Nehru and Indian Science" at the Aligarh Muslim University under the auspices of the Duty Society Centenary lectures programme. Dr. Qasim said that Nehru was a believer in self-reliance in the field of Science and Technology and added that it was only due to vision of Nehru that science and technology were developed as a major force for accelerating social and economic change.

He said that India's cultural and spiritual heritage has a great deal to do with the Indian traditions and its spectacular progress in the field of science and technology. He was of the view that Nehru was not only the chief architect of modern India but also a man of science.

Referring to the significant developments in high technology and computers during the past few years in the country, Dr. Zahoor Qasim, the leader of first Indian expedition to Antarctica, highlighted the role of computers and said that computers are going to make very significant contributions in the field of atomic energy, biotechnology and the development of high temperature superconductors.

In his presidential address, Prof. Wasiur Rehman, Pro-Vice-Chancellor, said that the Nehru era has been the golden age of Science and Technology in India. His rich and wonderful legacy will continue to inspire the present and future generations of scientists.

National Workshop on High Temperature Superconductivity

The Physics Department of Banaras Hindu University, at the instance of Department of Science and Technology, Govt. of India and University Grants Commission organised a two-day workshop on High Temperature Superconductivity on 14-15 December, 1988. Prof. Yash Pal, Chairman, University Grants Commission inaugurated the workshop. Professor A.R. Verma, former Director, National Physical Laboratory and a distinguished physicist was the chief guest. Prof. R.P. Rastogi, Vice-Chancellor, BHU presided over the inaugural function.

Prof. Yash Pal in his inaugural address remarked that the Universities had the great potentialities of producing the would be scientists and technologists of the country and the Universities must not lag behind in doing so in the new top priority area of "High Temperature Superconductivity". He said that he had recommended to the Government that Universities and National Laboratories should not be differentiated. Universities must be adequately funded and the research and development in the area of High Tc Superconductivity should be initiated in the Universities.

Prof. A.R. Verma, observed that unless the base of original research was strengthened in the universities the country would not march ahead. He cited the quotation of Pt. Jawahar Lal Nehru that "if all is well in the university, all will be well in the country".

Prof. R.P. Rastogi, in his presidential address, said that the University took its own initiative and provided a seed money of Rs. 1 lakh last year to start the work in the area of high temperature superconductivity.

Prof. O. N. Srivastava, the convener of the workshop, said that the area of High Tc Superconductivity, which has been discovered in 1987, will lead to a scientific revolution and will make the dream of flying trains, pocket size computers and loss-less electrical transmission lines come true. Prof. Srivastava thanked the University and the University Grants

Commission for providing adequate support for carrying out a priority project in this area involving the departments of Physics, Ceramic Engineering, Chemical Engineering, Electronics Engineering, etc.

On the occasion a special session on the preparation of Thalium Superconductors was also organised. This session was chaired by Prof. Yash Pal, Chairman, UGC who appreciated the efforts of BHU scientists. Prof. R. Srinivasan of I.I.T, Madras giving his expert comments remarked that the demonstration of preparation of Thalium superconductors to such a large audience was a remarkable feat for each.

Prof. S.K. Joshi, Director, National Physical Laboratory, New Delhi spoke on "Prospects and perspectives of High Temperature Superconductors". He pointed out that even if only the loss-less electrical transmission superconducting wires were made and utilised in our country it would save about 3000 MW of electricity costing about Rs. 6000 crores.

News from UGC

INSAT-1 B Programme of UGC

Between 10th January to 31st Jan., 1989 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV Network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

10.1.89

"Facing the Interview"
"Education Through Television"
"Eye Surgery : Cataract and Intraocular Lens Implantation"

11.1.89

"Precision and Optical Instruments"
"In Search of the Past—I"
"Land Between Euphrates & Tigris"
"Plants in our Neighbourhood —II"

12.1.89

"Karnaugh Maps—I"
"A Prophet of the Space Age—An Interview with Arther C. Clarke—II"
"A Conversation with an American Indian Poet—I"

13.1.89

"Space Science and Technology—I"
"The Environment and Engineers at Lake Sonoma"

14.1.88

"Interior Decoration—II"
"Bharat Jan Vigyan Jatha"

15.1.89

No Telecast

16.1.89

"Diffraction and Aberration"
Issue of Pricing of Agricultural Products—I"
"Maize"

17.1.89

"Woman in Science"
"The Modern Library"
"Total Knee Replacement Surgery"

18.1.89

"Liquid Gold"
"In Search of The Past—II Egypt—The Ancient Empire on the Nile"
"Plants in Our Neighbourhood —III"

19.1.89

"Karnaugh Maps—II"
"A Future in the Past"
"A Conversation with an American Indian Puet—II"

20.1.89

"Space Science and Technology —II"
"Education in Mauritius—An Interview"
"Folklore and Folkloristics—I"

21.1.89

"Interi or Decoration III"
"Actor's Face as a Canvas"
"Shadow Puppet Making"

22.1.89

No Telecast

23.1.89

"Cooling by Gunny Bags"
"Issue of Pricing of Agricultural Products—II"
"Rats in the Rice"

24.1.89

"pH Titration—Computer Aided Instruction"
"Find me a Book"
"Glaucome and Trabeculectomy"

25.1.89

"The Energy of Lunar Turbines"
"In Search of the Past—III"
"Plants in our Neighbourhood —IV"

26.1.89

No Telecast

27.1.89

"A Talk on Fascination and Use of Outer Space"
"Science for People"
"Folklore and Folkloristics—II"

28.1.89

"Adventures in Art"
"Porcelain"

29.1.89

No Telecast

30.1.89

"Physics of the Sun"
"Issue of Pricing of Agricultural Products—III"
"Fight Against Hunger Man made Proteins—I"

31.1.89

"Copper"
"University Round Up"
"JALMA (Japanese Leprosy Missionary Association)"

Govind Ballabh Pant Himalaya Paryavaran Evam Vikas Sansthan

(G.B. Pant Institute of Himalayan Environment and Development) Kosi, Almora, U.P. 263643

An autonomous Institute established by the Ministry of Environment & Forests, Govt. of India

The Govind Ballabh Pant Institute of Himalayan Environment & Development located in Almora, U.P. is a multi-disciplinary research and development related organization set up to undertake studies on the Himalayan ecosystems and for their holistic development Apart from undertaking indepth studies and applications in the core areas listed below, the Institute hopes to integrate local peoples perceptions of environment and development and further contribute towards strengthening research of regional relevance through interactive net-working of Scientific competence and NGO groups operating in the hill region.

SECTION A

The Institute is seeking to fill up many scientific positions in the salary scale of Rs. 3700-5000 (with five year post-doctoral experience) and also in the senior scales of Rs. 4500-5700 or Rs. 5100-6300 depending upon qualifications and experience of the candidates. The scholar should have outstanding merit as evidenced by published research; for senior positions post-doctoral experience of 10-15 years is expected, preferably working in the hill region. He is expected to have the ability to organize and lead multi-disciplinary research teams as heads of the following Divisions.

1. Land and Water Resource Management

Qualifications Essential : Ph.D. in Botany/Biology/Forestry/Agriculture/Soil Science/Geology/Hydrology or Master's degree in Civil Engineering (1st Division), with specialization in water resource development, Micro-watershed management, Soil Conservation and/or land use management.

2. Conservation of Biological Resources

Qualification Essential : Ph.D. in Botany/Biology with specialization in Conservation Ecology and with a broad perspective of biological and Social aspects.

3. Sustainable Development of Rural Ecosystems

Qualifications Essential: Ph.D. in Botany/Zoology/Biology/Agriculture/Agriculture Economics/Physical Sciences/Sociology/Applied and Quantitative geography with specialization in Micro-level planning Human Ecology/Rural Development/Regional Development.

4. Ecological Economics and Environmental Impact Analysis

Qualifications Essential : Ph.D. in Economics with specialization in Ecological Economics and Environmental Impact analysis OR a basic degree in Engineering with Master's degree (1st Division) in Systems Analysis. Work experience in Environmental Impact Analysis.

5. Systems Analyst

Master's degree (1st Div.) in Mathematics, Physics, Engineering, Computer Service, Management Science with work experience of atleast 5 years in systems analysis.

6. Scientist In-charge, Institutional Net-working

Ph.D. in Natural/Social Science. Specialization in Ecology/Environmental Studies. Work experience in organizing interactive workshops and developing research programme.

7. Scientist In-charge, Human Investment

Ph.D. in Natural/Social Science. Specialization Ecology/Environmental Studies. Work Experience in Environmental Awareness Programmes.

NOTE : (a) The requirements relating to the Academic Qualifications experience are relaxable in exceptional cases

(b) Candidates normally should be below the age of 45 years. Relaxation is possible in exceptional cases.

(c) Candidates considered to be exceptionally qualified may also be considered for the higher grades of Rs. 5900-6700 or Rs. 5900-7300.

(d) Candidates could be offered positions at a lower scale than that applied for.

(e) The Institute reserves the right to consider exceptionally qualified and suitable Scientists for appointments, from amongst those who may not have applied for the posts.

SECTION B

The following positions and scales under the supporting programme of the Institute are available :

1. **Librarian** (Rs. 3000-4500) or (Rs. 3700-5000) Master's degree (1st Division)/Ph.D. in Library Science with work experience of at least 5 years in a library.

2. **Editor of Publications** (Rs. 3000-4500) or (Rs. 3700-5000) Master's degree in Science (1st Division). At least 5/7 years of editing and publication of Scientific Books/Journal. Desirable : Specialization in Science journalism.

SECTION C

The following positions in Administration are available :

1. **Administrative Officer** (Rs. 2200-4000 or Rs. 3000-4500 or Rs. 3700-5000) Bachelor degree in any subject. Atleast 4/6 years of administrative experience at the level of Section Officer in a Government Department/Organization or equivalent experience in a Private Organization with experience in personnel management, coordination function and ability to liaison with other Government/non-Government organizations.

2. **Finance Officer** (Rs. 2200-4000 or Rs. 3000-4500 or Rs. 3700-5000) Bachelor degree in any subject. Sub-ordinate Accounts Service (SAS) of the Comptroller & Auditor General of India (CAG)/Comptroller General of Accounts (CGA)/Indian Defence Accounts Service/Indian Postal Accounts Service/Indian Railway Accounts Service or equivalent accounting qualifications such as Chartered Accountant or Cost Accountant with at least 3/5 years experience as Accounts Officer.

The Institute provides promotional opportunities to its scientific employees through flexible complementation scheme (operated as per Central Government Rules).

Application on plain paper with Bio-data giving all relevant particulars relating to qualifications, age, experience, publications, present position, present and expected salary and indicating prominently the post for which application is being made should reach (through proper channel, if already employed). THE DIRECTOR, G.B Pant Institute of Himalayan Environment & Development, Room No. 561, C/o Ministry of Environment & Forests, Paryavaran Bhawan, C.G.O. Complex, New Delhi-110 003, by 25th February, 1989. Persons already employed in Government/autonomous Institutions could be considered for appointment on deputation basis.

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AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month', while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research Scholars and students of education are welcome to use these resources. The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Psychology

1. Merlene, A. Annie Marie. *Aspirations and adjustments in marital life of the people of Kerala.* Kerala. Dr. Sam Sananda Raj, Reader, Department of Psychology, Kariavattom.

Sociology

1. Gadwal, A. Rahim A. Mujeeb. *Badali workers in textile industry in Solopur : A sociological study.* Shivaji. Dr. M.S. Makandar, Walchand College, Ashok Chowk, Solapur.
2. Mane, P.A. *The genesis and growth of periodicals in Maharashtra : A sociological study.* Shivaji. Dr. S. N. Pawar, Head, Department of Sociology, Shivaji University, Kolhapur.
3. Nelson, John K. *Labour legislation and labour welfare in Nigeria with special reference to industrial workers in Port Harcourt.* Devi Ahilya. Dr. K.P. Pothan, Prof. and Head, Department of Sociology, Indore Christian College, Indore.

Social Anthropology

1. Roy, Lona. *Cultural anthropology.* Delhi. Dr. V.C. Channa, Department of Anthropology, University of Delhi, Delhi.

Political Science

1. Pawar, S. D. *Social and political thought of Acharya Jawadekar.* Shivaji. Dr. A.S. Chausalkar, Department of Political Science, Shivaji University, Kolhapur.

Economics

1. Gajendragadkar, A.V. *A study of socio-economic conditions of industrial labour in Solapur with special reference to leftist trade unions.* Shivaji. Dr. S. G. Bhanushali, D.R.K. College of Commerce, Kolhapur.
2. Sharma, Liaq Ram. *Optimizing resource use and integration of farming systems in Himachal Pradesh.* HP. Dr. J. P. Bhati, Department of Economics, Himachal Pradesh University, Shimla.

Law

1. Usha, S. *The delinquent student : A socio-legal study with special reference to Kerala.* Kerala. Dr. N.K. Jayakumar, Prof., Centre for Advanced Legal Studies and Research, Trivandrum.

Education

1. Ambadi, Mini P. *A study of proficiency in language components and achievement in English language at Secondary School level.* Kerala. Dr. Vasantha Ramkumar, Prof. and Head, Department of Education, University of Kerala, Trivandrum.
2. Bedekar, Nayaku Krishnaji. *A study of developing teaching model of Hindi descriptive essay teaching and testing the efficacy of the model.* Shivaji. Dr. A.N. Joshi, Reader, Department of Education, Shivaji University, Kolhapur.
3. Kuttappan, K. *Development and comparison of certain models for language education towards competency based*

teacher education. Kerala. Dr. M.S. Gomathy Ammal, Reader, Department of Education, University of Kerala, Trivandrum.

4. Mishra, Rani. *Development of a video programme on population education for B.Ed. trainees and testing its effectiveness*. HS Gour. Prof. S.P. Ahluwalia, Head, Department of Education, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

5. Supriya, A.R. *The perception and involvement of college students in Kerala on adult and continuing education programmes*. Kerala. Dr. K Sivadasan Pillai, Centre for Adult Education and Extension, University of Kerala, Trivandrum.

Commerce

1. Deyanandan, M.N. *The Kerala State Cashew Development Corporation : An evaluative study.* Kerala. Dr. M. Sarangadharan, Reader, Department of Commerce, University of Kerala, Trivandrum.

2. Hareendranath, S. *Finances of municipal corporations in Kerala State*. Kerala. Dr. M.K. Ramachandran Nair, Reader, Department of Commerce, Institute of Correspondence Courses, University of Kerala, Kariavattom.

3. Mangaj, A.S. *Performance of new equity share issues with special reference to selected fertiliser companies in private section*. Shivaji. Dr. S. G. Bhanushali, D.R.K. College of Commerce, Kolhapur.

4. Mohanan, S. *Role of primary agricultural credit societies in the agrarian development of Kerala.* Kerala. Dr. M.K. Ramachandran Nair, Reader, Department of Commerce, Institute of Correspondence Courses, University of Kerala, Kariavattom.

5. Raju, G. *An evaluation of the integrated rural development programme with special reference to Kerala State.* Kerala. Dr. M.K. Ramachandran Nair, Reader, Department of Commerce, Institute of Correspondence Courses, University of Kerala, Kariavattom.

6. Shah, Janak Mukundrai. *A study of financial structures of selected fertilizer manufacturing units in India.* Baroda. Prof. A.G. Patel, Department of Accounts, M S. University of Baroda, Baroda.

7. Thomas, Joseph. *Staff management in selected cooperative societies in Kerala*. Kerala. Dr. M.K. Ramachandran Nair, Reader, Department of Commerce, Institute of Correspondence Courses, University of Kerala, Kariavattom.

Management

1. Mathur, Shubhendu Prakash. *Performance appraisal of investment companies in India : A case study.* BHU. Prof. R.M. Srivastava, Department of Management Studies, Banaras Hindu University, Varanasi.

2. Rai, Yogendra Nath. *Marketing information system in export : A case study*. BHU. Dr. H.C. Chaudhary, Department of Management Studies, Banaras Hindu University, Varanasi.

3. Sahay, Anand Prakash. *Financing pattern of industrial undertakings in U. P. : A case study.* BHU. Prof. R. M. Srivastava, Department of Management Studies, Banaras Hindu University, Varanasi.

4. Sonker Bizay Kumar. *Film industry distribution system in India : Problems and prospects*. BHU. Dr. A.K. Agrawal, Department of Management Studies, Banaras Hindu University, Varanasi.

HUMANITIES

Philosophy

1. Dabhola, J.R. *Dr. B.R. Ambedkar's interpretation of Buddhist Doctrine* (*Dhamma*). Shivaji. Shri Tarktirtha Laxmanashastri Joshi, President, Prajna Pathashala Mandal, Wai Distt., Satara.

2. Hirawe, R.S. *Theory of virtue : A comparative study*. Shivaji. Shri Tarkatirtha Laxman Shastri Joshi, President, Padnya Pathashala Mandal, Wai, Distt. Satara.

Language & Literature

English

1. Dixit, Prachi Shashikant. *Modernity in the poetry of Emily Dickinson : Perception and revelation*. Devi Ahilya. Dr. R.N. Sharma, Principal, (Retd.) 57, Raj Mahal Extension, Near Roop Ram Nagar, Indore.

2. Powar, Manik S. *Santha Rama Rao : A critical study*. Shivaji. Dr. S K. Desai, Vice Chancellor, Kuvempu University, Shimoga, Karnataka.

Hindi

1. Chavan, A. G. *Rajendra Yadav ke upanyason mein chitrit madhyavargiya jeevan : Ek anusheelan*. Shivaji. Dr. V.K. More, Raj. Chh. Shahu College, Kolhapur.

2. Geetha Kumari, V. *A contrastive analysis of Hindi and Malayalam*. Kerala. Dr. G.K Panikkar, Prof., Department of Linguistics, University of Kerala, Kariavattom.

3. Ghorpade, C. V. *Sathhottari Hindi upanyason mein parivartit nari jeevan-mulya, isvi san 1961 se san 1990 tak*. Shivaji. Dr. G.S. Surve, Head, Department of Hindi, L B.S. College, Satara.

4. Jayasree, S.R. *Acquisition of Hindi by school children in Kerala : A linguistic study*. Kerala. Dr. G.K. Panikkar, Prof., Department of Linguistics, University of Kerala, Kariavattom.

5. Mujawar, S.H. *Hindi gazal ke vividh ayam*. Shivaji. Dr. V.V. Kotabage, Kisan Veer Mahavidyalaya, Wai, Distt., Satara.

6. Rajdan, Rajkumari. *Acharya Hazari Prasad Dwivedi ke upanyason mein itihas aur prem*. HP. Dr. (Mrs.) Krishna Raina, Department of Hindi, Himachal Pradesh University, Shimla.

Arabic

1. Haneefa, V. *A comparative study of the spoken and written Arabic of Saudi Arabia with special reference to Hijas*. Kerala. Dr. K. M. Mohammed, Reader, Department of Arabic, University of Calicut, Calicut.

Tamil

1. Baburajan, A. *Reference and bibliographical sources of Tamil language and literature—State of the art survey and evaluation of selective sources*. Kerala. Dr. K. Nachimuthu Prof., Department of Tamil, University of Kerala .Kariavattom.

Malayalam

1. Jaya, R.S. *Vilasiniyude novalukalik kathapathra patanam.* Kerala. Dr. P.K. Sumathykutty.

2. Jayasree, I. *Gundert's Malayalam-English dictionary : A critical study.* Kerala. Dr. N. Rajendran, Lecturer, Department of Linguistics, University of Kerala, Kariavattom.

3. Lekha Kumari, K. *The evolution of Malayalam phonology.* Kerala. Dr. E.V.N. Namboodiri, Prof., Department of Linguistics, University of Kerala, Kariavattom.

4. Noufal, M.S. *Romantic elements in Malayalam short stories.* Kerala. Dr. N. Sam.

5. Vasantham, B. *Kumaranasante natakangal : A study.* Kerala. Dr. P.K. Sumathykutty.

Geography

1. Adsul, R.S. *Urban perspective of class I cities in Maharashtra.* Shivaji. Dr. P.W. Deshmukh, Reader, Department of Geography, Shivaji University, Kolhapur.

History

1. Pawar, P.A. *Ports in Satara District.* Shivaji. Dr. A.M. Sutar, A.S.C. College, Ichalkaranji.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Library & Information Science

1. Sharma, Ajay Kumar. *Hindi mein sandarbh sahitya ka udbhav evam vikas : Alochanatmak adhyayan.* Jiwaji. Dr. S.M. Tripathi, Librarian and Head, School of Studies in Library and Information Science, Jiwaji University, Gwalior.

Psychology

1. Dhaliwal, Varinder. *An experimental study of short term and long term memory as determined by distribution of practice, age, sex and sense modalities.* Panjab.

2. Katarni, Sphurti Dilip. *A factorial study of superstitions in relation to sex intelligence and emotionality.* Nagpur. Dr. C.G. Pande, Department of Psychology, Nagpur University, Nagpur.

3. Kedar Nath. *Organizational climate, role stress and locus of control in job involvement among banking personnel.* BHU. Dr. A.P. Singh, Reader, Department of Psychology, Banaras Hindu University, Varanasi.

4. Krishan, Mridula. *Climactoric symptomatology and attitude towards the menopause (Climacterium) in women of four major ethnic groups of Kumaun Region.* Kumaun. Dr. V. K. Sharma.

5. Mathew, P. M. *Personality correlates of psychogenic impotence.* Kerala. Dr. P. Gapala Pillai, Prof. and Head (Retd), Department of Psychology, University of Kerala, Kariavattom.

6. Satish Kumar. *Organizational and personal determinants of job involvement and job satisfaction of supervisors in public and private companies.* Magadh.

7. Sharma, Archna. *An experimental study of psychomotor performance and reminiscence as determined by personality, intelligence, sex and practice.* Panjab.

8. Singh, Hari Shankar. *Coping strategies as moderator of the relationship between organizational role stress and mental health.* BHU. Dr. A.K. Srivastava.

9. Tara Singh. *Effects of experiential deprivation and contextual constraints on allocation of processing resources during reading.* BHU. Dr. C.B. Dwivedi, Reader, Department of Psychology; Banaras Hindu University, Varanasi,

10. Vasudeva, Padm Nabh. *A factor-analytical study of sociometric status.* Panjab.

11. Venkataramana, M. *Vocational needs and occupational choices of the socially disadvantaged and socially non-disadvantaged pupils.* Venkateswara. Dr. I.V. Ramana Reddy, Department of Psychology, Sri Venkateswara University College, Tirupati.

12. Verma, Kamini. *An experimental study of short-term and long-term memory as determined by motivation, age, sex and sense modalities.* Panjab.

Sociology

1. Geeta Devi. *Niyojit matritva ke prati mahila unmesh evam ubharati chetnatmak pravritiyan.* BHU. Dr. P.N. Pandey.

2. Kumar, Neelam. *Social adjustment and its impact on productivity : A study of glass industry workers of Ferozabad, Agra.* Aligarh. Dr. M.B. Matta.

3. Mohandas, K. *Culture change and physical characteristics of Paliyans of Kerala.* Kerala. Dr. G. Narayana Pillay, Prof., Department of Sociology, University of Kerala, Kariavattom.

4. Pandey, Bhawani Shanker. *Varanasi Janpad ke chune huye praudh shiksha kendron per adharit samaj vaigyanik adhyayan.* BHU. Dr. (Miss) Girija Saklani.

5. Rajalakshmi, P.V. *A study of women and child welfare programme in Andhra Pradesh.* Venkateswara. Prof. A.S.N. Murthy, Department of Sociology, Sri Venkateswara University College, Tirupati.

6. Shah, Ila. *Kumauni lokgeeton ka samajshastriya adhyayan.* Kumaun. Dr. K.B. Singh.

7. Shakeel Ahmad. *Fertility trends and population policy in North East Bihar.* Aligarh. Prof. Noor Mohammad, Reader, Department of Sociology, Aligarh Muslim University, Aligarh.

Social Anthropology

1. Sinha, Raghuvir. *Social structure of the Bhils of Malwa in Western Madhya Pradesh.* Ravishankar. Dr. C.S.

Singhrol, Prof. and Head, Department of Anthropology Ravishankar University, Raipur.

Political Science

1. Anjaneyulu, Settipalli. *Municipal town politics : A case study of Vizianagaram Municipality.* Andhra.

2. Chowdhary, Rekha. *Ideology and the political system. A study of Indian political system.* Jammu. Prof. Satya Bhushan, Department of Political Science, University of Jammu, Jammu.

3. Goel, Rajendra Kumar. *Bharat mein samvidhan sanshodhanon ka vishleshanatmak adhyayan.* Awadhesh. Dr. M.K. Bhargava, 5 Civil Lines, Rewa.

4. Jeevan Kumar, D. *A study of the organisation of working of the directorate of backward classes and minorities of Government of Karnataka.* Bangalore. Prof. K.H. Chaluvaraju, Vice Chancellor, Gulbarga University, Gulbarga.

5. Khan, Mohammad Ali Sher. *Role of the opposition in the Indian Parliament, 1951-61.* Aligarh. Dr. S.A.H. Bilgrami, Prof. and Head, Department of Political Science, Aligarh Muslim University, Aligarh.

6. Khan, Musthaq Ali Gousemohiuddin. *The party system. and the federal process in India since 1968.* Karnatak. Dr. A.M. Rajasekharaiah, Prof., Department of Political Science, Karnatak University, Dharwad.

7. Malleswara Rao, Vayalapalli. *Land revenue administration in the Viziapatnam District. 1802-1908.* Andhra.

8. Ram, Kawal Dhari. *Harbart Marcuez aur unke kranti ka siddhant.* BHU. Prof. (Kum) N. Pant, Reader, Department of Political Science, Banaras Hindu University, Varanasi.

9. Sampath Kumar, T. John. *Centre-state relations and inter state cooperation : A case study of Telugu Ganga Project.* Venkateswara. Prof. M.V. Subba Rao, Department of Politi,cal Science and Public Administration, Sri Venkateswara University College, Tirupati.

10. Sindhu, I.D. *Trends in voting behaviour : A comparative study of the 1977, 1980 and 1982 elections in six assembly constituencies of Himachal Pradesh.* HP.

11. Singh, Digvijay. *Global concern for ecological imbalances, optimum carrying capacities and equitable consumption : A frame work.* JNU. Prof. R.C. Sharma, Centre for International Politics, Organization and Disarmament, Jawaharlal Nehru University, New Delhi.

12. Singh, Om Prakash. *Sanchar madhyamon ka prabhav Varanasi Mandal ke antargat Jaunpur Jile ke panch gaon aur ke kasbe per sanchar madhyamon ke rajnitik prabhav ka adhyayan.* BHU. Prof. H.N. Tripathi, Reader. Department of Political Science, Banaras Hindu University, Varanasi.

13. Singh, Shyama Nand. *The role of caste, class and politics in the job reservation policy in Bihar, in the light of suggestions, 1977-1979*, Patna. Dr. Leela Sinha, Lecturer, Department of Political Science. M.M. College, Patna.

14. Subramanian, Malathi. *Theoretical models of the Indian political party system, 1960-75 : The American political science perspective.* Karnatak. Dr. K. Raghavendra Rao, Prof. (Retd), Department of Political Science, Mangalore University, Mangalore.

15. Tewari, Beena. *Kumaun Mandal Vikas Nigam sanrachana : Karya evam kshetriya vikas mein yogdan.* Kumaun. Dr. S.K. Jha.

Economics

1. Bhandari, Deen Bandhu. *A study of factors affecting profitability of fertilizer units in public sector in India.* Baroda.

2. Gautam, Saroj. *Human resource development of rural women with special reference to time use analysis and feasibility of vocational training.* HAU.

3. Gowri Devi, N. *Power supply and economic development in Andhra Pradesh.* Venkateswara. Prof. E. Munirathnam Naidu, Department of Economics, Sri Venkateswara University College, Tirupati.

4. Haragopal, K. Sai. *Impact of drug policy 1978 on bulk drug production : A case study of IDP.* Osmania.

5. Joshi, Ashutosh. *Locational pattern of industries in Uttar Pradesh, 1960-1978.* Kumaun. Dr. T.S. Papola.

6. Kasturibai, Florence. *The impact of industrial estates on the economies of Madurai and Ramanathapuram District.* Madurai.

7. Krishna Murthy, V. *Industrial dispersal and regional development : A case study of Andhra Pradesh.* Venkateswara. Prof. B.R.K. Rao, 6/77, Sri Venkateswara Nagar, Tirupati.

8. Kushwaha, Ram Singh. *Sagar Jile mein laghu sinchayee pariyojanaon ka arthshastra.* HS Gour. Dr. A. Raman, Visiting Prof., Department of Regional Planning and Economic Growth, Bhopal University, Bhopal.

9. Lamsal, Gangadhar. *Dimensions of rural employment and poverty in Nepal : a study of poverty and its interrelation with unemployment : A case study of two villages.* Baroda.

10. Mahdi, Syed Haider. *The role of Regional Rural Banks in integrated rural development with special reference to Varanasi.* BHU. Dr. S.C. Srivastava, Reader, Department of Economics, Banaras Hindu University, Varanasi.

11. Padhye, Chandrashekhar Dhundirao. *Kamal jameendharana, karyadyacha Nagpur jilhyateel krishivar jhalela prabhav.* Nagpur. Dr. S.N. Bodhenkar, C.P. & Berar College, Nagpur.

12. Raja, A. *A economic study of paultry farming in Tamil Nadu : A case study of Salem District.* Madurai.

13. Rajinder Kaur. *An evaluative study of women development programmes under Indo-German Dhauladhar Project, Palampur, Distt. Kangra, H.P.* PAU.

14. Rathna Kumari, S. *Integrated rural development programme in Chittoor District : A study of two blocks.* Venkateswara. Prof. E. Munirathnam Naidu, Department of Economics, Sri Venkateswara University, Tirupati.

15. Singh, Ramashankar. *Indo-German economic relations since independence.* BHU. Dr. S.C. Srivastava, Reader, Department of Economics, Banaras Hindu University, Varanasi.

16. Surya Kumari, Challa. *Bank finance and tribal development : A case study of Visakhapatnam District.* Andhra.

17. Thomas, P.V. *The role of the urban informal sector with special reference to India : A note on the methodology.* Awadhesh. Dr. V.C. Sinha, Prof., Department of Business Economics, Awadhesh Pratap Singh University, Rewa.

18. Thressiamma, K.V. *Movement of input and output prices of rice in Kerala and its impact on area yield and output.* CUST. Dr. K.C. Sankaranarayanan, Prof. and Head, Department of Applied Economics, Cochin University of Science and Technology, Cochin.

19. Yadav, Lallan. *Marketed and marketable surplus of wheat in Lalganj Block of Azamgarh District, Uttar Pradesh.* BHU. Dr. B.D. Shukla, Prof, Department of Agricultural Economics, Banaras Hindu University, Varanasi.

20. Zahin Uddin. *Import substitution and industrial development of India during 1951 to 1981.* Aligarh. Prof. Kishwa Shabbir Khan, Department of Economics, Aligarh Muslim University, Aligarh.

Public Administration

1. Devadanam, K. *The working of the office of the Prime Minister of India : A case study of Shrimati Indira Gandhi.* Venkateswara. Dr. S. Sri Krishna, Lecturer, Department of political Science and Public Administration, Sri Venkateswara University College, Tirupati.

2. Sankara Rao, Matcha. *Some aspects of the organisational and administrative processes of King George Hospital, Visakhaptnam, Andhra Pradesh.* Andhra.

Education

1. Dhoundiyal, N.C. *Expectancy biasis among student teachers : Formulation and test of the effectiveness of a remedial strategy.* Kumaun. Dr. A.R, Bisht.

2. Fareeda Khatoon. *A study of mathematical aptitude among boys and girls and its relationship with interests and vocational preferences at secondary school level.* Osmania.

3. Gupta, Ruma. *A study of political interest and political efficacy among undergraduate students.* BHU. Dr. Uma Varshney, Reader, Department of Education, Banaras Hindu University, Varanasi.

4. Gurbaxani, Kamal Ramchand. *A critical study of the curricula and materials in the school final year with a view to judging their relevance to the changing roles and responsibilities of educated women.* Osmania.

5. Joshi, Manju. *A study of the effect of test anxiety and intelligence on performance of high school students in a segment of science following programmed instruction in linear and branching styles.* HP.

6. Mehtab Singh. *A comparative study of the organisational climate leadership behaviour and teacher morale in Municipal and Distt. Board Schools of Aligarh.* Aligarh. Prof. Safia Sultana, Reader, Department of Education, Aligarh Muslim University, Aligarh.

7. Mohammad Ashraf. *A case study of selected Delhi schools with special reference to innovative classroom practices.* Jamia. Prof. S.P. Ruhela, Department of Teachers Training and Non-Formal Education, Jamia Millia Islamia, New Delhi.

8. Morey, Rambhau Tulshiram. *Madhyamik shikshakanche vyaktittwa, adhyapan abhiyogyata ani pariamikarita yanchya sambandhacha abhyas.* Nagpur. Dr. S.K. Jha, Janata College of Education, Chandrapur.

9. Parwal, Savitri. *Disciplined V/s undisciplined students, their personality and metal abilities.* Kumaun. Dr. A.R. Bisht.

10. Rao, Lakshmi. *Effect of noise pollution on the behaviour of school going children.* Nagpur. Dr. G.S. Parasher, Department of Education, Nagpur University, Nagpur.

11. Sandhu, Kiran. *A comparative study of sportswomen and non-sportswomen in selected psychological and sociological variables.* Jamia. Prof. Mohd Miyan, Head, Department of Foundations of Education, Jamia Millia Islamia, New Delhi.

12. Saxena, Vandana. *A study of impact of family relationship on adjustment anxiety, achievement motivation, self concept and academic achievement of high school students of Agra City.* Agra. Dr. (Mrs) Shruti Kumar, Faculty of Education, R.B.S. College, Agra.

13. Singh, Ajay Kumar. *Learning styles of advantaged and disadvantaged high school students in relation to their academic achievement.* BHU. Dr. S. Singh.

14. Sumangala, V. *Some psychological and social familial correlates of creative behaviour among secondary school children.* Kerala. Dr. A. Sukumaran Nair, Pro-Vice Chancellor, University of Kerala, Trivandrum.

15. Thapa, Shashi. *An empirical investigation of creativity among tribal and non-tribal Kumauni adolescents in relation to some motivational traits.* Kumaun. Dr. V.K. Sharma.

16. Tyagi, Ramesh Chand. *Factorial analysis of S.I. abilities in relation to achievement in physics.* Jamia. Prof. Devendra Joshi, Department of Teacher Training and Non-Formal Education, Jamia Millia Islamia, New Delhi.

17. Usmani, Shaheen. *A study of principal effectiveness in relation to professional attainment, socio-economic background, values of life and attitude towards teaching.* Aligarh. Mr. M S. Khan, Reader, Department of Education, Aligarh Muslim University, Aligarh.

18. Vijaya Bharathy, Maggam. *A study of internal assessment in the secondary schools of Vizag District : Its perspectives and problems.* Andhra.

19. Warsi, P.S. *An experimental study of students perception of teachers as a function of educational level, academic achievement and school background of students.* Kumaun. Dr. N. Hasnain.

Commerce

1. Bartariya, Virendra Bahadur. *Bharat ke niryat vyapar mein Uttar Pradesh ka yogdan.* Rohilkhand. Dr. B.N. Chaurasia, Hindu College, Moradabad.

2. Chakrabarti, Gauranga. *Valuation of shares of companies in India.* Calcutta.

3. Chinnapa, Reddy, K. *Role of the district cooperative central banks in agricultural financing : A case study of Anantapur District in Andhra Pradesh* Venkateswara. Dr. B. Sadasiva Reddy, Department of Commerce, B.T. College, Madanapalli.

4. Joseph Stanley, Bethapudi. *Workers' participation in management in India : A study of some participative bodies in selected public and private sector organisations.* Andhra.

5. Kulwant Singh. *Cooperative agricultural credit utilisation in Himachal Pradesh.* HP.

6. Mishra, Ram Narayan. *Analysis of business of the Life Insurance Corporation of India.* BHU. Dr. M.N. Mishra, Reader, Department of Commerce, Banaras Hindu University, Varanasi.

7. Nemali, K. Sainath. *Trade unionism in banking industry : A study with reference to State Bank of India, Hyderabad Circle.* Venkateswara. Dr. V. Satyanarayana Murti, Department of Commerce, Sri Venkateswara University College, Tirupati.

8. Rama Rao, K. *Labour management relations in cotton textile industry in Andhra Pradesh.* Venkateswara. Prof. N. Kamaraju Pantulu, Department of Commerce, Sri Venkateswara University, Tirupati.

9. Sanwal, R.C. *Van utpadon ka vipanan : Uttar Pradesh ke sandarbh mein samasyaon evam sambhavnaon ka vishleshanatmak adhyayan.* Kumaun. Dr. T.D. Joshi.

10. Sharma, Rakesh. *A study of security [market in India since 1956 with special reference to securities of major industries.* Kumaun. Dr. N.S. Rana.

11. Shyamasundar Naidu, N. *A performance appraisal of District Industries centres : A case study of Chittoor District.* Venkateswara. Prof. N. Kamaraju Pantulu, Department of Commerce, Sri Venkateswara University College of Arts and Science, Tirupati.

12. Singh, Krishna. *Industrial relations in Bokaro Steel Plant : A case study.* BHU. Dr. A.A. Ansari.

13. Subramanyam, J. *Personnel management in Tirumala Tirupati Devasthanamas* Venkateswara. Prof. N. [Kamaraju Pantulu, Dean, Faculty of Commerce, Sri Venkateswara University, Tirupati.

14. Suntha, C.D. *Kumaun mandal ke audyogikaran mein vyaparik bankon evam vittiya sansthaon ka yogdan.* Kumaun. Dr. N.S. Rana.

Home Science

1. Giakwad, Jyoti Madhukar. *A study of personality traits of elementary school children in relation to their mothers' marital adjustment and child rearing practices.* Nagpur. Dr. Panna Akhani, L.A.D. College, Nagpur.

2. Khokkar, Santosh Devi. *Studies on some biochemical, nutritional and antitoxic effects of distary fibre.* HAU.

Management

1. Ferotan, Ghulan Zekeria. *Indo-Afghan business relations : A comparative analysis of Indo-Afghan trade relations.* Delhi.

2. Ramakanth, J. *Measurement and comparision of managerial attitudes.* Osmania.

3. Ramesh, S. *A study of marketing management in cotton textile industry in Karnataka.* Bangalore. Dr. P.N. Reddy, Department of Commerce and Management, Bangalore University, Bangalore.

4. Vidyanath, G. *A study of efficiency of financial management in textile mills in cooperative and [public sectors.* Bangalore. Prof O.R. Krishnaswami, Sri Sathya, 674, 15th Main Road, IV T Block, Jayanagar. Bangalore.

CLASSIFIED ADVERTISEMENTS

THE UNIVERSITY OF KASHMIR

SRINAGAR

Brief Advertisement Notice

Applications on prescribed form accompanied by a Postal Order/Bank Draft/Bank Receipt amounting to Rs. 35/- (Rs. 25/- being the cost of application form and Rs. 10/- as application fee) drawn in favour of the Registrar, University of Kashmir cashable at Srinagar Post Office are invited for the below mentioned posts. The applications which can be had from the office of the undersigned should reach the office of the University on or before **13.1.1989** :

1. **Professors in the pay scale of Rs. 4500-150-5700-200-7300 in:**

Department/Centre/Institute:

Home Science, Library Science, Media Education Research Centre (Mass Communication), Urdu, Department of Special Assistance (Department of Urdu) (Tenure post) and Zoology.

2. **Director in Computer Centre in the pay scale of Rs. 4500-150-5700-200-7300.**

3. **Readers in the pay scale of Rs. 3700-125-4700-160-5300 in :**

Department/Centre/Institute :

Bio-Chemistry, Centre of Central Asian Studies (one each in Persian, History and Regional Geography), Chemistry, Education, Economics, History, Home Science, Islamic Studies, Library Science, Political, Science, Urdu, Department of Special Assistance (Department of Urdu) (Tenure post).

4. **Senior Research Officer in Population Research Centre in the un-revised pay scale of Rs. 1200-50-1300-60-1900.**

5. **System Analyst in Computer Centre in the pay scale of Rs. 1100-1600 (un-revised).**

6. **Lecturers in the pay scale of Rs. 2200-75-2800-100-4000 in :**

Department/Centre/Institute :

Centre of Central Asian Studies—(one each in Economics and Mongolian Studies), Chemistry, History, Iqbal Institute, Kashmiri, Persian, Political Science, Zoology (one leave vacancy) and Law (leave vacancy).

7. **Lecturers/Scientific Officers in Physics in the pay scale of Rs. 2200-75-2800-100-4000.**

8. **Producer, Research Scientist and Assistant Engineer in Audio Visual Research Centre in the un-revised pay scale of Rs. 700-40-1100-50-1600.**

Qualifications

A. Essential

The essential qualifications for the posts of Professors, Readers, Lecturers, Lecturer/Scientific Officer shall be the same as prescribed by the U.G.C. However, the candidates for the following posts should also possess the essential qualifications as indicated against each post:

1. **Reader, Islamic Studies :**

Having regard to the need for developing inter-disciplinary programmes the degrees indicated for the post may be in relevant subjects. The relevant subjects comprise, besides Islamic Studies, Muslim Philosophy, Comparative Religion. Religious Studies and Islamic History and Culture. Those having Master's degree in Arabic are also eligible to apply provided they have obtained M. Phil/Ph.D. degree in Islamic Studies.

2. Lecturer in Iqbal Institute

M.A. in Urdu or Persian or Arabic or English Philosophy or Hindi.

3. Computer Centre

i. Director

Ph.D. in Computer Science/Physical Science/Engineering with at least 3 years of experience of working in the next lower grade at a recognized Computer Centre having VAX-11 or equivalent computing facilities;

OR

M.Sc. in Computer Science/M.E./M. Tech. with at least six years of experience of working in the next lower grade at a recognized Computer Centre having VAX-11 or equivalent computing facilities.

ii. System Analyst

Master's Degree in Science or Bachelor's Degree in Engineering or post M.Sc. Diploma in Computer Science followed by at least 5 years experience as System Programmer in next lower grade.

4. Population Research Centre

Senior Research Officer

At least high second class Post-graduate degree in Demography/Statistics/Economics/Sociology / Psychology/ Anthropology/Social Work.

Experience

At least 6 years teaching/research experience in Population Studies/Demography or conducting of Socio-Economic Surveys/Demographic Surveys.

5. Audio Visual Research Centre

i. For Producer

Degree or Diploma of a recognised Institution in Cinema (Direction) or in Development Communication or degree of a recognized University or equivalent qualification and 3 years experience of direction in Television/Film Production.

ii. For Research Scientist

1. (a) A Master's Degree in Sociology Social Anthropology, Mass Communication or Education with not less than 55% marks in the aggregate;

   (b) M. Phil. or Ph.D. in any of the above subjects;

2. Knowledge of Social Science research methods as evidenced from research publications based on field research or has taken a course in Social Scienc research methods for the Master's Degree;

3. Two years experience as a Research Fellow or Research Associate in a University or a research organisation.

iii. For Assistant Engineer

B E. (Electronics) or M.Sc. (Physics) with Electronics or M.Sc. (Electronics) from a recognized University/Institution or equivalent with two years experience in the field of T.V. Broadcasting.

B. Desirable

1. Bio-Chemistry

Reader : The candidate should have at least five years teaching/research experience after Ph.D. Candidates who have worked in the fields of Microbiology/Immunology as indicated by published work will be given preference.

2. Centre of Central Asian Studies

(i) Reader (Persian) i. Knowledge of Persian sources of the History and Culture of Central Asia (Medieval Period);

ii. Knowledge of Tajik Language and Scripts.

(ii) Reader (History) : Research work on the History of Mongolia or Central Asia (Contemporary period). Knowledge of Persian/Russian. Evidence of published work.

(iii) Reader (Regional Geography)

i. Knowledge of Geography of Central Asia.

ii. Evidence of research work done in the field.

(iv) Lecturer (Economics) Specialization in any aspects of Economics relating to Central Asia. Evidence of published work. Knowledge of Persian/Russian.

(v) Lecturer (Mongolian Studies) i. Master's degree in Social Science or in any language of Central Asia;

ii. Research Degree in any field of Mongolian Studies;

iii. Knowledge of History and Culture of Central Asia;

iv. Knowledge of Mongolian Language.

3. Computer Centre

i. Director : Significant contribution in research and/or software development work and experience in Management responsibilities at a Computer Centre.

ii. System Analyst : Research degree in Computer Science or equivalent Software Development Project Work.

4. Chemistry

i. **Reader :** Organic Chemistry

ii. **Lecturer :** Organic Chemistry (For one post)

5. Economics

Reader : Candidates should be acquainted with Statistical and quantitative Techniques of Analysis.

6. History

i. **Reader** Medieval Indian History or Modern Indian History.

ii. **Lecturer** Any area of Indian History, Knowledge of Ancient Indian History.

7. Home Science

Reader Extension Education/Foods and Nutrition/Nutrition.

8. Iqbal Institute

Lecturer i. Knowledge of Persian (if not M.A. in Persian);

ii. 5 years research experience on Iqbal;

iii. Published work on Iqbal.

9. Islamic Studies

Reader : Good knowledge of Arabic Language

10. Audio Visual Research Centre

Research Scientist i. Ph.D. in the subject preferably in the area of Mass Communication;

ii. Knowledge of quantitative analytical techniques preferably with Computers;

iii. Work experience in inter-disciplinary research teams.

11. Persian

Lecturer Fully knowledgeable in :

i. Modern Persian Literature;

ii. Modern Spoken Persian;

iii. Persian Literature after Islamic Revolution in Iran.

Preference shall be given to such candidates who shall speak in modern spoken Persian also.

12. **Political Science**

i. **Reader** Public Administration (for one post). Modern Political Analysis/State Politics in India/Political Development (for the other post).

ii. **Lecturer** Political Analysis/State Politics in India/Political Development/Public Administration.

13. **Physics**

Lecturer/Scientific Officer

i. Solid State Electronics

ii. Spectroscopy

iii. Atmospheric Physics and Statistical Mechanics

14. **Population Research Centre**
Senior Research Officer

i. Ph.D. or published work of equivalent standard.

ii. Persons with Post-graduate degree in subjects other than Demography should have studied/training in Demography/Population Studies.

15. **Department of Special Assistance**

i. **Professor** i. Published work on literary criticism in Urdu;

ii. Published work on literary criticism in Kashmiri ;

iii. Published work in Thrust Area. i.e. Culturology of Urdu Language and Literature in Kashmir.

ii. **Reader** i. M.A. Linguistics;

ii. Published work on Kashmiri and Urdu Linguistics.

16 **Zoology**

i. **Professor**

i. Entomology;

ii. Parasitology Helmintology ;

iii. Ichthyology,

ii. **Lecturer** Helminthology/Cytogenetics

Requests for issuance of application forms should accompany a self-addressed pre-paid envelope of 5" x 11" size.

Candidates are advised, in their own interest, to send six copies of their detailed curriculum vitae in advance. However, applications not received subsequently on prescribed forms will not be considered. **Any application received beyond due date will not also be considered.**

Candidates who have already applied for the posts of **Professor in Urdu, Reader in Islamic Studies and Library Science and Lecturer in Political Science** in response to Advertisement Notice No.F. 10 (App-Gen-157) Adm. dated 9.11.1987 and 8. 2. 1988 need not apply again.

Any of the qualifications/experience may be relaxed at the discretion of the University. It will be open to the University to consider the names of suitable candidates who may not have applied.

S.D. Qureshi
DEPUTY REGISTRAR Admn.

ALL INDIA INSTITUTE OF SPEECH AND HEARING

MANASAGANGOTHRI :

MYSORE-570 006

Advt. No. 7/88

Applications are invited for one post of Lecturer in Speech Pathology—Reserved for SC/ST in the scale of Rs. 2200-75-2800-EB-100-4000/- in the above Institute. Total emoluments on the minimum scale Rs. 3,176/- P.M. General candidates would be considered if there are no suitable SC/ST candidate. Age : Below 35 years.

Full details regarding qualification, experience etc., alongwith application form may be obtained from the Institute on payment of Rs. 2/- each (Re. 1/- for SC/ST) either in cash or through Indian Postal Order by sending self-addressed and stamped (Re. 1.40) envelope (9"x4"). The last date for receipt of application is 27-1-1989.

DIRECTOR

UCHCHA SIKSHA AUR SHODH SANSTHAN

DAKSHINA BHARAT HINDI PRACHAR SABHA

Advt. No. 10/88-89

Dated : 27-12-88

Applications are invited on the prescribed form for the following posts on or before **15-1-89** on the following address :

"Registrar, Postgraduate and Research Complex, Dakshina Bharat Hindi Prachar Sabha, P.B. No. 82, Khairatabad, Hyderabad-500 004"

1. **Lecturers**—College of Education (Hindi Medium)—3 Posts

(One for Madras, one for Hyderabad and one for Vijayawada)

Scale of pay : Rs. 700-40-1100-50-1600 with usual Allowances.

Qualifications and Experience

Second class M.A./M.Sc. and M.Ed. with Second class. Efficiency to teach all subjects in Hindi is Essential.

2. **Lecturer—One Post (for P.G. complex, Hyderabad)**

Scale of Pay : Rs. 700-40-1100-50-1600 with usual Allowances.

Qualifications and Experience

M.A. 1st class or High Second class in Hindi Language and literature with Doctoral Degree.

Desirable : Knowledge of applied Linguistics with Translation Experience.

3. **Lecturer-cum-Programmer in Computer Science**—One Post (for Hyderabad)

Scale of Pay : 700-1600 with usual allowances.

Qualifications and Experience

A Master's degree in Computer Applications with consistently good academic record. OR

Post Graduate with DCA having 1 or 2 years experience in Computer environment.

Proficiency to teach in Hindi is essential and qualifications in management is desirable.

Prescribed applications can be had from the Registrar by sending Crossed Postal Order of Rs.5 -

V. Anjaneya Sarma
REGISTRAR

MANIPUR UNIVERSITY
CANCHIPUR, IMPHAL-795 003
Advertisement No. 10/88
Dated, the 17th December, 1988

Applications are invited for the following posts :

Post	Department	No. of Posts	Specialization
Professor	Mathematics	1	Preferably in Pure Mathematics
Associate Professor	Manipuri	1	Classical Sanskrit & Vaishnava Literature with special reference to Manipuri Arts & Culture.

Scales of Pay

Professor : Rs. 4500-150-5700-200-7300/-p.m.

Associate Professor : Rs. 3700-125-4700-150-5700/- p.m.

Essential Qualifications

1. **Professor** : An eminent scholar with published work of high quality actively engaged in research in the relevant field. About 10 years experience of teaching and/or research. Experience of guiding research at doctorate level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge in the relevant field.

2. **Associate Professor** : (a) Good academic record with a doctorate degree or equivalent published work in the relevant field. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

(b) About 5 years experience of teaching and/or research provided that at least three of these years were as Assistant Professor/ Lecturer or in an equivalent position.

This condition may be relaxed in the case of candidates with outstanding record of teaching/research.

Candidates invited for interview will be given Ist Class (for Professor) and 2nd Class (for Associate Professor) railway fare as T.A. from the place of origin and back or the actual expenses on fare, whichever is less.

How to Apply : Applications, on plain paper (in duplicate) with attested copies of certificates in support of qualifications and experience showing candidate's name, father's name, date of birth, address for correspondence, academic & professional attainment, teaching & research experience, field of specialization, publications (to be enclosed with reprints), seminars/conferences attended, details of visits to foreign countries and assessment reports from at least two persons well acquainted with the candidate's professional work should reach the REGISTRAR, MANIPUR UNIVERSITY, IMPHAL-795-003 on or before 10-1-89.

Applications received late or incomplete in any respect may not be entertained. Persons already in service must apply through their employers so as to reach this office on or before the last date fixed. No candidate will be considered for appointment unless he/she produces a 'No Objection Certificate' from his/her employer at the time of interview.

Retired persons who have not attained the age of 62 years may also apply for appointment on contract basis. It will be open to the University to consider the names of suitable candidates who may not have applied.

COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH

Joint CSIR - UGC Junior Research Fellowship Examination, 1988

Advertisement No. 2-9/88-E.U.II

The above examination will be held on **22nd January, 1989** at various centres as already notified in the **Employment News, Dated 22nd October, 1988.**

Acknowledgement letters intimating the Roll No. of the candidate and the name and address of the Co-ordinator of the Centre concerned have been issued to all the candidates. If any applicant has not so far received the acknowledgement, he/she may contact the **Dy. Controller of Examination, CSIR Complex, NPL Campus, Dr. K.S. Krishnan Marg. New Delhi-110012** immediately indicating his/her name, address, subject, Bank Draft No. and date and Centre.

Admit Cards are likely to be issued to all the candidates by 31st December, 1988. In case any candidate does not receive the **Admit Card by 7th January, 1989,** he/she should contact the Co-ordinator of the Centre concerned alongwith the acknowledgement and a copy of his/her passport size photograph, at least one day before the date of the examination.

Ministry of Human Resource Development

(Department of Education)

ES. III Section

USSR Government Scholarships for the Year 1989-90

Applications on plain paper are invited from Indian nationals for the award of 70 scholarships (35 for Post-Doctoral Studies/Higher Specialisation and 35 for Doctoral Degree offered by the Government of the USSR for the year 1989-90 as per the following details.

Subject-fields for Post-Doctoral Studies/Higher Specialisation

(1) Solid State Physics (including Micro-electronics Laser Technology Materials and Surface Studies) (2) Plasma Physics (including LASER, PHD, REB and Fusion Studies) (3) High Energy Physics (4) Cryogenics (5) Heat & Mass Transfer (6) Geophysics & Seismology (7) Biotechnology & Genetics (8) Catalysis (9) Corrosion (10) Materials for Thermonuclear Fusion (11) Oceanography (12) Powder Metallurgy (13) Computer Modelling (14) Environmental Sciences (15) Electro Metallurgy (16) Organic Synthesis (17) Fibre Optics (18) Space Sciences (19) Astronomy and Astrophysics (20) Mathematics (21) Pure Chemistry.

Duration : Upto 2 years (with about 6 months' Russian Language Training).

Value : Maintenance allowance of Roubles 100-200 per month depending on the nature and level of the course

Qualifications : Uniformly good academic record (with 60% or above marks at Master's Degree level) with Ph.D. Degree in Science/Engineering/Technology, as the case may be, or equivalent qualification in the subject selected or in an allied field. Preference will be given to persons possessing knowledge of Russian Language.

Subject-fields for Doctoral Degree

(1) Agronomy (2) Biological Protection (3) Computer Science (4) Energy Research (Conversion & Source) (5) Fibre Optics (6) Mathematics (7) Material Science (8) Micro-Biology (9) Molecular Biology (10) Plant Cell Fusion (11) Plant Physiology of Environmental Resistance (12) Solid State Physics (13) Tribology (14) Geo-Physics (15) Geology and (16) Chemistry.

Duration : Four years (including about one year for Russian Language Training).

Value : Maintenance allowance of Roubles 100 per month.

Qualifications : Uniformly good academic record with atleast 60% marks at Master's Degree level or equivalent qualification in the subject selected or in an allied field.

Essential Experience for Doctoral Studies only

Atleast two consecutive years' teaching/research/practical experience as on 1-10-1988 in the subject fields selected after passing the prescribed qualification (successful completion of M. Phil/Pre-Ph. D. course will be counted towards experience for Doctoral Degree).

Age : Not more than 35 years for Post-Doctoral studies and 33 years for Doctoral Studies, as on 1-10-1988 (Relaxation in age upto 2 years will be given in the case of Scheduled Caste/Scheduled Tribe candidates). Upper age limit and experience can be relaxed by not more than three months at the discretion of the Selection Committee in the case of brilliant candidates.

Passage Cost : The passage cost from the USSR to India will be provided by the Soviet authorities after completion of the course/training. Travel expenses from India to the USSR will have to be borne by the candidate or his/her employers/sponsors. Subject to availability of funds the passage cost may be met by the Govt. of India, provided the candidate is eligible under the rules. Only those candidates whose parents/guardians' income is less than Rs. 12,000/- per annum from all sources after permissible deductions are eligible. If the applicant is employed, his salary also will be taken into account. However, if the applicant has been in full time employment for at least two years before the last date prescribed for submission of application, the salary to be taken into account for the purpose of income limit would be the applicant's salary and not that of the parents/guardians. Candidates interested in applying for passage cost may ask for further details only after they have been informed of their final selection by this Ministry.

Note : (i) The following must be attached with the application : (a) Attested copy of the certificate showing the date of birth. (b) Attested copy of the marks sheet of the qualifying examinations. (c) Attested copies of all degrees/diplomas/certificates etc (ii) Candidates with equivalent foreign qualifications will also be considered (iii) Master's Degree means M.A./M.Sc./M. Tech./M.E., but not M.Phil or Pre-Ph.D. (iv) Where Grades are awarded, the conversion formulas of the University/Institution must be indicated. (v) Candidates must furnish a clear and precise programme of study/research in the USSR. (vi) Applications in the subject-fields other than those specified will not be considered. (vii) Candidates who have already been abroad for study/specialisation/training either on a scholarship or on their own are eligible to apply only if they have been in India for atleast three consecutive years after their return from abroad. (viii) Candidates should have adequate knowledge of Geographical situation, culture & heritage of India and the USSR. (ix) Applications of candidates who are at present abroad will not be considered. (x) Candidates who do not possess the requisite qualifications need not apply. (xi) A candidate already possessing a Ph.D. Degree is eligible to apply only for a Post-Doctoral course and not for another Ph.D. (xii) The application form should accompany a crossed Postal Order of Rs. 5/- (Rs. 1.25 in case of Scheduled Castes/Scheduled Tribes and other Backward Classes) payable to the Secretary, Ministry of Human Resource Development, Department of Education, Shastri Bhavan, New Delhi. (In case of employed persons Postal Order should be attached with the advance copy only) (xiii) Applications which do not contain the Postal Order will not be considered. (xiv) The candidates are not allowed by the Soviet Union to take their spouse/family with them to USSR. (xv) One application should be submitted for one subject only. Candidates should apply for the above scholarships on plain paper, furnishing the following details and attested photostat copies of Degrees/Diplomas/Marks Sheets/Date of Birth to the Secretary, Ministry of Human Resource Development (Department of Education), External Scholarships Division, ES-3 Section, Room No. 516, B-Wing, Shastri Bhavan, New Delhi-110001 by 20-1-1989. The documents should be properly tagged. Applications received late will not be entertained.

FORMAT OF THE APPLICATION

1. Name of the Scholarship Scheme USSR Govt. Scholarships, 1989-90
2. (a) Subject :
   (b) Sub-Subject
   (c) Doctoral/Post-Doctoral
3. Name of the candidate (in Block letters), with full mailing address :
4. Date of birth and the State to which the candidate belongs
5. Whether a member of SC/ST or Tribal or aboriginal Community. If so, give full particulars.
6. Academic record starting from High School/Higher Secondary.

Affix here a
Passport size
Photo

Name of the University/Board/Institutions	Examination(s) Passed	Year of passing	Division/Class with Position; if any*	% age of marks obtained and position, if any.	Subject taken.

* (in case no Division Class is awarded & only grading is done the conversion formula adopted may be mentioned)

7. Details of Professional, Practical Training and Research Experience, specifying the period & number of papers published, previous employment with name & date of employment, if any.
8. Nature of the present employment with date of appointment, designation and the name and address of the employers.
9. Have you been abroad? If so, give full particulars of the country and the period, also, mention the year of return to India.
10. Proposed programme of study/research/training specifying :
    (i) the work in which engaged at present. (ii) nature & programme of study/research desired. (iii) Future plans/prospects after the proposed studies/research and (iv) How are these related to the technical or economic development of India?
11. Crossed Postal Order of Rs. 5.00 (Rs. 1.25 in case of SC/ST candidates, etc.) may be attached with the form with passport size photograph (one copy) (No. and Date of Postal Order to be given)

NOTE : Employed persons must send their applications fully sponsored by the Employer. However, advance applications will be considered provisionally pending sponsorship by employers.

Place———
Date————

(Signature of the Candidate)

davp 88/629

GOVERNMENT OF INDIA
MINISTRY OF HUMAN RESOURCE DEVELOPMENT
(DEPARTMENT OF EDUCATION)
HUNGARIAN GOVERNMENT SCHOLARSHIPS 1989-90

Applications on plain paper are invited from the Indian nationals who are residing in India for the award of six scholarships offered by the Government of Hungary for obtaining "CANDIDATE OF SCIENCE" Degree (Ph.D) in the following subject fields:—

1. Linguistics 2. Literature 3. Mathematics 4. Economics

Duration : The scholarships are tenable for 3-4 years (including the time required for learning the Hungarian language) in Hungary.

Qualifications: Uniformly good academic record, with 60% or above marks at Master's degree in the subject concerned or related field.

NOTE: Conversion formula should be given where grades have been awarded by University/Institutions.

Essential Experience: At least two consecutive years teaching/research/practical experience as on 1.1.1989 in the subject field selected after the prescribed educational qualifications.

Age Limit: Below 33 years as on 1.1.1989 born on or after 2.1.1956) relaxable upto two years in upper age for Scheduled Castes/Scheduled Tribe candidates. The upper age limit and experience may be relaxed but by not more than 3 months at the discretion of the Selection Committee in the case of brilliant candidates.

Value: Expenditure on boarding and lodging, internal travel related to the studies etc. will be met by the Hungarian Government.

Passage Cost: The cost of passage from India to Hungary and back will be borne by the candidate or his/her sponsorers/employers. Subject to availability of funds, the passage cost may also be met by the Government of India provided the candidate is eligible under the rules.

Note: (1) The following documents must be attached with the application: (a) Attested copy of the certificate certifying the date of birth (b) Candidates belonging to SC/ST must attach a copy of certificate to this effect. (c) Attested copies of marks sheets of the qualifying examinations (d) Attested copies of all degrees/diplomas/certificates etc., (e) A clear and precise programme of study/research proposed to be undertaken in Hungary (f) A recent passport size photograph of candidate to be affixed on the prescribed application form (g) A crossed Indian Postal Order of Rs. 5/- (and Rs. 1.25/- p. in case of SC/ST and other backward classes issued after the date of publication of this advertisement and payable to the Secretary, Ministry of Human Resource Development, Department of Education, New Delhi (2) Application in the subject-field other than those specified above will not be considered (3) Candidates who have already been abroad for study/specialisation/training either on a scholarship or on their own are eligible to apply if they have been in India for atleast three consecutive years after their return from abroad, (4) Applications of candidates who are at present abroad, will not be considered (5) Candidates should have sufficiently good knowledge of India and the Donor country (6) Applications which do not contain Postal Orders and other required documents will be treated incomplete and will not be considered (7) No correspondence will be entertained with candidates not selected for interview/fellowships (8) Canvassing in any form will be a disqualification (9) Candidates must send their applications fully sponsored by their employers. (10) Applications received after the prescribed date will not be entertained. Candidates should apply for the above scholarships on plain paper (preferably typed) furnishing the requisite details/particulars to the Deputy Educational Adviser, Ministry of Human Resource Development, Department of Education, External Scholarship Division, Section ES. 1, Room No. 516, B-Wing, Shastri Bhavan, New Delhi-110001 latest by **16th January, 1989**. Application received thereafter will not be entertained for consideration. Format of application is attached.

FORMAT

Code for use in Office	A	Q	E

Passport size photograph to be pasted here.

1. Name of the country offering Scholarships :
2. (a) Subject :
   (b) Sub-subject
3. Name of the candidate (in Block Letters), with full mailing address :
4. Marital Status :
5. Date of birth and the State to which the candidate belongs :
6. Whether a member of SC/ST or a tribal or aboriginal community. If so, give full particulars :
7. Academic record starting from High School/Hr. Secondary.

Name of the University/Board Institutions	Examination(s) passed	Year of passing	Division/Class with position, if any.*	% of marks obtained. Position, if any.	Subjects taken

*(in case of no Division/Class is awarded & only grading is done the conversion formula adopted may be obtained.

8. Details of Professional Practical Training & Research Experience, specifying the period and number of papers published. :
9. Details of employment with dates and capacity and name of employer. :
10. Nature of the present employment with date of appointment, designation and the name and address of the employers. :
11. Have you been abroad? If so, give full particulars of the country; purpose and the period; also, mention the year of return to India. :
12. Have you approached any University or professor in the country offering the Scholarship to accept you and if so, indicate with what results. Please attach copy of reply received. :
13. Knowledge of foreign languages (other than English). Please attach proof. :

Name of the Language (s)	Spoken Very Good/Good/Fair	Written Very Good/Good/Fair

14. Proposed programme of study/research/training specifying :
    i) the work in which engaged at present (indicating Date of Ph.D. registration and name of Institution).
    ii) Nature and programme of study/research desired.
    iii) future plans/prospects after the proposed studies/research, and
    iv) how are these related to the technical or economic development of India?
15. Crorsed Postal Order of Rs. 5/- (Rs. 1.25 in case of SC/ST candidates etc.) may be attached with the form with passport size photograph (one copy) : (No. and Date of Postal Order to be given)

Note : Employed persons must send their applications fully sponsored by the employers. However, advance applications will be considered provisionally pending sponsorship by employers.

Place :

Date :

(Signature of Candidate)

16. a. Certified that Shri/Smt./Km. .... is employed by us/me and he has been sposored by us/me for study abroad.
    b. He/She will be relieved by me/us, if selected.
    c. I/We undartake that he/she will be permitted to join his/her department/organisation on return from study abroad. I/We will ensure that his/her terms and conditions of service i.e. salary, seniority, promotion, leave etc. will not be adversely affected on account of his/her absence and further that every thing possible will be done to provide the scholar with work and conditions of service suitable to and commensurate training obtained abroad.

Place:

(Signature of Employer/
Sponsoring Authority)

Date:

Seal of Office.

@ Strike out if not applicable.

davp 88/625

MINISTRY OF HUMAN RESOURCE DEVELOPMENT

(Department of Education)

Danish Government Scholarships for 1989-90

Applications on plain paper in the given format are invited from Indian Nationals who are residing in India, for 3 scholarships offered by the Government of Denmark for 1989-90 for post-graduate or research workers in the fields of (i) Pedagogy for teachers of handicapped (ii) Atomic research (iii) Dairy Technology and (iv) Fine Arts. The duration of each scholarship will be from 4 to 8 months.

Purpose : These scholarships are designed for advanced students, graduates and specialists to enable them to study or carry out research at a Danish University or a similar institution of higher education but not for elementary study of the Danish language. Further, these are not intended for a full course of study. An academic degree or a diploma can not normally be obtained during the tenure of the scholarship.

Educational Qualifications : Uniformly good academic record with 60% or above marks at Master's Degree in the subject or in related field. **It is a condition that the applicants have before hand obtained an invitation from one of Danish Institution of higher education or research institutions.** Further, candidates having knowledge of Danish language will be preferred as the language of instruction in all educational institutions in Denmark is Danish. Knowledge of the Danish language is a definite advantage, and a necessity for students expecting to attend lectures or seminars at an institution of higher education in Denmark. If the applicant has no knowledge of Danish, it is essential that he or she be fluent in English or German in order to receive guidance from teachers or scientists.

Experience : At least two consecutive year's teaching/research/practical experience as on 1-10-1988 in the related field after the prescribed degree. Successful completion of M.Phil. will be counted towards experience.

Age : Must be less than 33 years as on 1-10-1988. Relaxation in age upto two years is however admissible in the case of Scheduled Caste/Scheduled Tribe candidates. Upper age limit and experience can also be relaxed upto three months at the discretion of the Selection Committee in the case of candidates possessing brilliant academic records.

Value : The scholarship covers free tuition plus a monthly allowance D. Kr. 3,720/- for students and younger graduates and D. Kr. 4,280/- for research workers or specialists. The scholarship is annually regulated, and is tax free in Denmark unless the total stay exceeds 365 days within a 2 year period. The scholarships is meant to cover the living expenses of one person only, and additional amounts for accompanying members of the family are not available.

Scholarship holders are not allowed to enter into paid employment during their scholarship period in Denmark.

Passage Cost : The passage cost from India to Denmark and back shall be borne by the candidate himself/herself or by his/her sponsorers/employers. Subject to the availability of funds, the passage cost may be met by the Government of India, provided the candidate is eligible under the rules.

Note : The following documents must be attached with the application : (a) Attested copy of the certificate certifying the date of birth (b) Candidates belonging to SC/ST must attach a copy of certificate to this effect (c) Attested copies of marks sheet of the qualifying examination (d) Attested copies of all degrees/diplomas/certificates etc., (e) A clear and precise programme of study/research proposed to be undertaken in Denmark (f) A recent passport size photograph of candidate to be affixed on the prescribed application form (g) A crossed Indian Postal Order of Rs 5/- (and Rs. 1.25 in case of SC/ST and other backward classes issued after the date of publication of this advertisement and payable to the Secretary, Ministry of Human Resource Development, Department of Education, New Delhi. (2) Application in the subject-field other than those specified above will not be considered. (3) Candidates who have already been abroad for study/specialisation/training either on a scholarship or on their own are eligible to apply only if they have been in India for at least three consecutive years after their return from abroad. (4) Applications of candidates who are at present abroad, will not be considered (5) Candidates should have sufficiently good knowledge of India and the Donor country. (6) Applications which do not contain Postal Orders and other required documents will be treated as incomplete and will not be considered. (7) No correspondence will be entertained with candidates who are not selected for interview/fellowship. (8) Canvassing in any form will be a disqualification. (9) Candidates must send their applications fully sponsored by their employers. Advance application duly completed in all respects may also be considered provided the application through employer is received within a fortnight from the last date prescribed for the receipt of completed applications pending sponsorship by employers (IPO is to be sent with the advance copy) and (10) Applications received after the prescribed date will not be entertained.

Candidates should apply for the above fellowships on plain paper (preferably typed) furnishing the details as mentioned in the "Note" above to the Deputy Secretary, Ministry of Human Resource Development, Department of Education, External Scholarship Division, Section ES 1, Room No. 516, 'B' Wing, Shastri Bhavan, New Delhi-110001 latest by **16th January, 1989.** Applications received thereafter will not be entertained for consideration.

FORMAT

Code for use in Office	A	Q	E

1. Name of the country offering Scholarships :
2. (a) Subject : (b) Sub-Subject
3. Name of the candidate (in Block letters), with full mailing address

Passport size photograph
to be pasted here.

3. (a) Marital Status :
4. Date of Birth and the State to which the candidate belongs :
5. Whether a member of SC/ST or a Tribal or aboriginal community. If so, give full particulars.
6. Academic record starting from High School/Hr. Secondary.

Name of the University/ Board/Institution.	Examination passed	Year of passing	Division/Class with position, if any (in case of no Division/ Class is awarded & only grading is done the conversion formula adopted may be obtained).	% age of marks obtained. Position, if any.	Subjects taken

7. Details of Professional Practical Training & Research Experience, speciying the period and number of papers published.
8. Details of employment with dates and capacity and name of employer.
9. Nature of the present employment with date of appointment, designation and the name and address of the employers.
10. Have you been abroad ? If so, give full particulars of the country; purpose and the period; also, mention the year of return to India.
11. Have you approached any University or professor in the country offering the Scholarship to accept you and if so, indicate with what results. Please attach copy of reply received.
12. Knowledge of foreign languages (other than English), Please attach proof :

Name of the Language(s)	Spoken. Very Good/Good/Fair	Written Very Good/Good/Fair
1.		
2.		

13. Proposed programme of study/research/training, specifying (i) the work in which engaged at present (indicating date of Ph.D registration and name of Institution).
(ii) Nature and programme of study/research desired, (iii) Future plans prospects after the proposed studies/ research, and (iv) how are these related to the technical or economic development of India ?
14 Crossed Postal Order of Rs. 5.00 (Rs. 1.25 in case of SC/ST candidates etc.) may be attached with the form with passport size photograph (one copy). (No. and date of Postal Order to be given).

NOTE : Employed persons must send their applications fully sponsored by the employers. However, advance applications will be considered provisionally pending sponsorship by employers.

Signature of the Candidate

Place————————

Date————————

15. (a) Certified that Shri/Smt./Km ——————————————is employed by us/me and he has been sponsored by us/me for study abroad. (b) He/She will be relieved by me/us, if selected. (c) I/We undertake that he/she will be permitted to joint his/her department/organisation on return from study abroad. I/We will ensure that his/her terms and conditions of service i e. salary, seniority, promotion, leave, etc. will not be adversely affected on account of his/her absence and further that everything possible will be done to provide the scholar with work and conditions of service suitable to and commensurate training obtained abroad.

(Signature of Employer Sponsoring Authority)*
Seal of Office

Place :

Date :

* Strike out if not applicable.

davp SS/624

iifm

INDIAN INSTITUTE OF FOREST MANAGEMENT BHOPAL

Post Graduate Programme in Forestry Management 1989-91

ADMISSION NOTICE

THE INSTITUTE : The process of building an institution of Management Education in Forestry was initiated in 1978 under an agreement which Government of India entered into with the Swedish International Development Authority. Simultaneously, in pursuance of this agreement, Government of India and Indian Institute of Management Ahmedabad (IIMA) signed a two year agreement to jointly share the responsibility of establishing an independent autonomous Indian Institute of Forest Management (IIFM).

The Indian Institute of Forest Management (IIFM) was established in the year 1982 as an autonomous organization of the Ministry of Environment, Forests and Wildlife, Government of India, in response to the felt need for development of managerial capabilities among the officers of the Forest Service and meeting the managerial manpower requirement of the forestry and allied sector.

The Institute is being developed as an Educational, Training, Research and Consultancy Centre and is expected to acquire international acceptance. The Institute provides excellent infrastructural facilities and its campus is one of the best in the country; situated on a hill-top in Nehru Nagar, Bhopal. Institute's core faculty consists of academicians, practicing managers and officers of the Indian Forest Service.

P.G.D.F.M : The Institute's 2-years Post Graduate Programme was launched in July, 1988 for the young graduates drawn from every stream of knowledge, all over India to meet the professional manpower requirement of the forestry and allied sectors. The programme has a strong application bias at each stage of skill development and aims to develop a capacity to synthesise heterogenous bits of knowledge for evolving a holistic perspective of sectoral tasks and problems. The structure of the programme has been designed in such a manner that over-all learning roles are achieved and as such synergy as may exist between course-work, field-work and organization-training is exploited to the fullest extent.

ELIGIBILITY : An applicant should have : (i) Bachelor's Degree with minimum 50% aggregate marks (45% for SC and ST) and (ii) should have scored 50% aggregate marks (45% for SC and ST) in any one of the examination held by a Board/University for 10th, 11th, or 12th standard. Applicants who are appearing in the final year examination of Bachelor's Degree may also apply for provisional admission but they would be required to submit the evidence of achieving minimum qualification on or before 1st July, 1989.

SELECTION PROCEDURE : The admission process will be based on : (i) Screening through a national written test; and (ii) Group discussion/Personal inverview.

All eligible candidates will have to appear for a written test which examines the reading comprehension, problem-solving, analysis of situation, data sufficiency, writing ability and general awareness to infer about the managerial aptitude. Those selected from the written test will be invited for group discussion/personal interview at the Institute.

TEST CENTRES : The test will be conducted on March 19, 1989 at Bangalore, Bhopal, Bombay, Calcutta, Delhi, Gauhati, Hyderabad, Lucknow, Madras, and Patna.

FINANCIAL ASSISTANCE AND CAREER PROSPECTS : All programme participants will be provided a monthly scholarship of Rs. 1000/- per month which will approximately cover the boarding, lodging and academic expenses. The Institute will also assist in placement of successful participants through campus recruitment programme and other means. It is expected that all successful students will secure challenging career opportunities in organizations like Forest Development Corporations, Social Forestry Directorate, National Wastelands Development Board, NABARD and other banks, State Forest Departments, Department of Rural Development, Department of Environment/Soil Conservation, Forest-based Industries and Non-governmental Organizations on competitive remuneration.

RESERVATION : The likely number of vacancies are 30. 15% and 7.5% of the seats will be offered to SC and ST candidates respectively, who fulfill the minimum admission requirements.

HOW TO APPLY : Mail your request for information bulletin, application form and test sample booklet to the ADMISSION COORDINATOR, INDIAN INSTITUTE OF FOREST MANAGEMENT, NEHRU NAGAR, BHOPAL - 462003 enclosing an account payee bank Demand Draft for Rs.50/- (in case of SC/ST Rs.25/- only) in favour of 'INDIAN INSTITUTE OF FOREST MANAGEMENT, BHOPAL' payable at Bhopal.

Last date for receiving completed application for at the Institute is February 6, 1989.

davp 88/657

INDIAN INSTITUTE OF TECHNOLOGY MADRAS.

ADVERTISEMENT No. IITM/R/8/88

INDIAN INSTITUTE OF TECHNOLOGY, MADRAS invites applications for the post of **SUPERINTENDING ENGINEER** in the pay scale Rs. 1500-60-1800-100-2000 (pre-IV Pay Commission scale and likely to be revised) plus allowances.

QUALIFICATIONS & EXPERIENCE

A good Bachelor's degree in Civil Engineering. A minimum of 15 years experience in design and construction/maintenance of multi storeyed residential and Office buildings, roads, water supply and sewerage lines. Of the 15 years, at least 6 years should be Executive Engineer in the pay scale of Rs. 1100-1600/Rs. 1200-1900 (unrevised) or in an equivalent position.

Candidates are expected to have a fair knowledge of estate rules regarding licensing of quarters and public premises, maintenance of estate properties in a large residential educational Institution.

In the case of candidates having higher qualification(s) the requirement of experience may be relaxed suitably at the discretion of the Institute.

Other things being equal, preference will be given to SC/ST candidates.

GENERAL INFORMATION/CONDITIONS/INSTRUCTIONS

(i) Experience means experience gained after the qualifying degree.

(ii) The prescribed qualifications are minimum and the mere fact that a candidate possesses the same will not entitle him/her for being called for interview.

(iii) The Institute reserves the right to restrict the number of candidates for interview to a reasonable limit on the basis of qualifications and experience higher than the minimum prescribed in the advertisement.

(iv) The Institute also reserves the right of rejecting any or all applications without assigning any reason therefor.

For application form, please address the **REGISTRAR, INDIAN INSTITUTE OF TECHNOLOGY**, Madras 600 036 with a self addressed stamped (Re. 1.00) envelope (26 cm x 11 cm). Persons in the service of Government establishments and Public Sector Undertakings should apply through proper channel.

Completed applications with a crossed non-refundable current Indian Postal Order of the value of Rs. 7.50 (Re. 1.90 for SC/ST candidates) drawn in favour of the Institute payable at IIT Madras, P.O., should be sent to the Registrar of the Institute.

The last date for the receipt of completed applications is **20th January 1989**.

REGISTRAR

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University News

MONDAY, JANUARY 9, 1989

Rs. 2.50

C.F.T.R.I. MYSORE

ल्ली संस्कृत अकादमी. दिल्ली प्रशासनम

Balram Jakhar, Speaker, Lok Sabha (third from left) inaugurated the Seminar on Contribution of Sanskrit to Nationa Unity organised by Sanskrit Academy, Delhi. Seated on his left is Dr. D.S. Kothari, Chancellor, Jawaharlal Nehru University. Dr. L.M. Singhvi, prominent jurist, is also seen in the picture on the extreme left.

CLASSIFIED ADVERTISEMENTS

SAMBALPUR UNIVERSITY

JYOTI VIHAR : BURLA : SAMBALPUR (ORISSA) PIN-768019

Advertisement

Dated : 22-12-88

No. 23729/Estt. III

Applications are invited in the prescribed form for the following posts in the Sambalpur University, Jyoti Vihar, Orissa so as to reach the undersigned on or before **15th February, 1989.**

(A)	P.G. Departments Sambalpur University	Post	No. of Vacancy	Specialisation
(i)	English	Professor	One	—
(ii)	Earth Sciences	Professor**	One	—
(iii)	Law	Professor	One	—
(iv)	Home Science	Professor	One	—
(v)	History	Reader	One	Ancient Indian History Regional History & Modern History
(vi)	Anthropology and Sociology	Reader	One	Sociology
(vii)	Library and Information Science	Reader	One	—
		Lecturer	One	—
(viii)	Statistics	Lecturer	Two	—
(B)	**University College of Engineering : Burla**			
(i)		Principal	One	—
(ii)	Electrical Engineering	Reader	One	—
		Lecturer	Four	—
(iii)	For the Workshop	Workshop Superintendent	One	—
(iv)	Electronics and Tele-communication Engineering	Lecturer	Two	—
(v)	Civil Engineering	Lecturer	One	—

** Preference will be given to candidates with specialisation in Igneous/Metamorphic Petrology or Mineralogy.

Pay Scale and Qualifications : As prescribed by the U.G.C.

The prescribed application forms and full details regarding terms and conditions, qualifications and experience can be obtained from the University Office on any working day after 1st January, 1989 on cash payment of Rs. 25/- (Rupees twenty five) only Rs. 6.25 for candidates belonging to SC/ST) in person or on requisition accompanied by (i) Bank Draft of Rs. 25/- (Rs. 6.25 for candidates belonging to SC/ST) drawn in favour of the Finance Officer, Sambalpur University, (ii) Self-addressed envelope (25 cm x 10 cm) affixing postage stamp worth Rs. 8.30 superscribed with the words "Application form for Teaching Posts in Sambalpur University" on it.

Candidates staying abroad may apply on plain paper furnishing bio-data and qualification with copies of supporting documents (7 sets of applications and documents). Such candidates may be considered in absentia if they make written requests for the same.

Candidates who have applied for the posts of Principal and Workshop Superintendent in response to the office advertisement No. 12894/Estt., dated 20-6-87 need not apply again in the prescribed form. However they must write to the University in a plain paper that their cases may be considered while selecting candidates for the above posts.

All correspondences with this regard be made by designation and not by name.

REGISTRAR

INDIAN INSTITUTE OF SCIENCE

BANGALORE-560 012

REQUIRES

Scientific Officers (Two Posts) in the Centre for Electronics Design Technology.

Qualifications and Experience :

Post 1 (Reserved for candidates belonging to Scheduled Caste)

Essential : ME/M. Tech. in Electronics or Electrical Engineering with specialisation in the area of Power Electronics or its equivalent degree.

Desirable : (i) Experience in the Design and Development of Power Electronics equipment. (ii) Knowledge of Microprocessor Hardwafe design.

Post II : Essential : M.E./M. Tech. in Electronics or Electrical Engineering with specialisation in Instrumentation/Microprocessors or its equivalent degree.

Desirable : (i) Experience in the Design and Development of Microprocessor based Instrumentation or Industrial systems. (ii) Experience in real time Software.

Emoluments : Rs. 3256/- p.m. in the scale Rs. 2200-4000.

Details and prescribed application forms can be obtained from the Registrar, Indian Institute of Science, Bangalore-560 012 on request accompanied by an IPO for Rs. 5/- (free of cost to SC/ST on production of Caste Certificate from a competent authority) drawn in favour of him alongwith a self-addressed Rs. 5-40 stamped envelope of the size 28 x 18 cms. **on or before 20th January, 1989.**

R (IA) 308-57/88 **REGISTRAR**

UNIVERSITY NEWS

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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor :
SUTINDER SINGH

18 JAN
MYSORE

NATIONAL INTEGRATION

B. Sheik Ali*

National integration does the same job as does a little candle which throws a beam of light all around in a dark room. So does the sentiment of oneness in a nation where it would foster the feelings of filial bond, and would remove the malady of disunity. Peace, progress and prosperity of a nation would depend upon its inner strength to fight the divisive forces. A house divided within itself would never be able to face the challenges of life. History tells us that nations have risen or fallen in accordance with their ability to promote harmony, concord and solidarity. The bane of our history has been one of disunity, which opened the flood gates for disruptive forces to dominate over us. Human life everywhere is a state in which the organic law of nature operates to lift nations to glory if they regard all persons as members of a family, or pushes them to the lowest level of despondency, if self-centred behaviour gains the upper hand.

A question arises what is national integration? It is simply the art of living in peace and harmony with one's own fellowmen. Integration requires understanding and broad-mindedness. It is the feeling of oneness, equality, brotherhood and fellowship. It is an awareness to respect the rights of others. It is the assertion of human dignity, where one realises that divinity exists in every one. In Indian scripture *deha* or body is *devalaya* or dwelling of God. We would be insulting that element of divinity in a person if we do not treat him on par with us. That divinity is one's own conscience, which should be kindled by wisdom to realise that we owe certain responsibilities to our fellowmen. The first responsibility is the understanding that no value is greater than man himself. We have to respect his person, his labour, his strength, his faith, his belief, and his intelligence. We have to recognise his right to free development as we claim the right to our own development. We have to be aware that social progress lies in the search for the best in us as also in others. Respect for self, respect for others and respect for nature would result in a wonderful phenomenon, where love would abound. Where love abounds, God dwells. National integration is thus more a psychological and emotional gesture to think "thy need is greater than mine". It involves a feeling of sharing, caring, helping and loving. It is a philosophy of being good and doing good. It is an attitude of co-operation, and not confrontation, it is an attempt to come closer together and not withdrawal; it is the spirit of helpfulness and not competitiveness; it is more converging than diverging; and it is more a centripetal than a centrifugal force.

The second question is what is the need for national integration? The need is great from several points of view. Philosophically, the destiny of man is the search for the good things of life we call culture. Culture is that complex whole which includes knowledge, belief, art, morals, customs and any other capabilities or habits acquired by man as a member of the society. He can attain to culture only when the necessary atmosphere or ecology exists for its growth. That minimum requirement consists of peace, order, love and righteousness. If there is righteousness in the heart, there is love in the family. If there is love in the family there is order in the state. If there is order in the state there

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Vice-Chancellor, Goa University, Bambolim, P.O. Santa Cruz, Goa-403005.

is peace in the world. The other name for the righteousness of heart is integration. This righteousness of heart originates with inward self-direction or deep realisation of the entire mystery of life. Life itself is the gift of God, and life is the gift of wisdom and knowledge. Wisdom and knowledge are gained by observing the laws of nature through the sublimation of man's intellect. At this peak of man's thought all narrow differences between man and man would disappear. The essential requirement is the inward self-direction. If this inwardness of human being is ignored, we would fail to perceive the noble spark present in every one, even among the lowest. Sterling qualities of love, sincerity, loyalty, integrity, innocence, nobility of heart and goodness of soul are seen more often in the lowest of the low; and hatred, malice, crookedness, jeolousy, greed, arrogance, and snobbishness could sometimes be detected in the highest of the high. In the worst of us there is a lot that is good, and in the best of us there is a lot that is bad. We do not know who should teach whom. Hence, the safest thing is to respect all, and to accept the dignity of all, which is integration.

Scientifically, there is nothing in the creation above the level of man. He is not in the series of other objects or living beings. There is something very special about him which is beyond nature. This is true of all human beings, who in their physiology are all equal. Why then should we say one is high the other is low ? Moreover, if we observe nature there is greater harmony in the lower creation. No tiger kills another tiger; no wolf kills another wolf. But man kills man, not one but hundreds and thousands. One Hitler was enough to put six hundred thousand people into concentration camps and gas chambers. Throw a crumb to the dog, and it is loyal to you all its life. The cow grazes green grass to-day but gives white milk tomorrow. Brutus shares the table with Caesar to-day, but shows him the dagger to-morrow. Therefore, despite the sublimity of his creation in nature, man is guilty of the violation of the law of nature, for which he would be punished. If he wants to escape this punishment, he has to observe the higher code of conduct, which lies in unity, harmony, concord and integration.

Sociologically, distinctions of caste, creed and clas run counter to the nobility expected of higher souls. Society like the human body is an organic whole. If one part of the body is hurt, the whole body suffers. So does the society. If one section is unhappy, its impact would be on the entire society. Just as one part of the body is organically linked with the other the finger with the palm, the palm with the arm, arm with the shoulder, the shoulder to the trunk a so on—so also the different groups, segments a sections of the society should be organically linked integrated one with the other, in case the wh society were to function in a healthy manner. Just we do not say in human physiology that tissues a more important than bones, or kidneys are mo important than lungs, or eyes are more precious tha ears, so also in a society we need not say the rich a more important than poor, the merchants are mo beneficial than farmers, the intellectuals are wiser th the ignorant, the 'X' community is superior to ' community and so on. Woodrow Wilson was rig in saying, "Nations are renewed from bottom, n from the top. Everything I know of history, eve bit of experience and observation has confirmed me the conviction that the real wisdom of human life compounded out of the experience of ordinary me The utility, the vitality, the fruitage of life course like the natural growth of a great tree from the soi up through the trunk, into the branches, to the folia and the fruit. The great struggling unknown mass of men who are at the base of everything are th dynamic force that is lifting the levels of society. nation is as great, and only as great, as her rank an file".

It is the rank and file that form the bedrock human society. If they are in distress no fruit an flowers could be reaped. Therefore, all sections o all communities, of all professions, of all creeds, o all groups are equally important. Perhaps the struggl ing masses of all communities are more importan who are like roots. If they were to dry up the plan would die. If one branch withers, perhaps anothe may sprout, but not what is at the base. However full beauty of the bush would be when all branche are loaded with roses. Therefore, the wise gardene has an eye on every twig of the plant.

Having discussed the general aspects of nationa integration, let us proceed to examine the situation a it exists today in India. It is not a bed of roses There are more thorns than flowers. We feel autum is drawing near, and the spring is past behind us. Al glory of Indian humanism, liberalism and universalism seems to be in the books. We seem to be fast movin towards a crisis, unless the direction is reversed. Negative aspects have gained the upper hand. Selfishness, acquisitiveness, fanaticism, terrorism, hatred, jealousy, arrogance, exploitation, superiority complex, disdain for the under privileged, social inequality intellectual disparity, economic imbalance, politica discrimination and disregard of human values are raising their ugly heads to disturb our social structure. Divisive forces in the name of caste, creed, class, language, region and community are sowing the seeds of discord. The land of Buddha, Asoka, Akbar, Gandhi and Nehru is behaving in a way which would not bring glory to their names. The first thing that greets our eyes in the morning is the news of death, killing, murder, loot, rape, arson, strikes and terrorism. Many of our misfortunes are man made. Political, social, economic and religious differences are exploited to disturb the peace, and obstruct the development process. Small little issues are blown up out of proportion to cause needless tension. Postponement of examination is enough to disturb campus peace. Celebration of festivals result in riots, although they should be the joyous occasions to cement the relations between man and man. Boundry disputes, sharing of river waters, employment opportunities, political rivalries, and such other issues generate unnecessary conflicts, which could be resolved with a little good will on all sides. Communal virus, caste cancer and linguistic malady are more dangerous diseases to our healthy growth although they are not irreconcilable factors to annoy us. A little restraint, understanding, give and take, adjustment and liberal outlook would solve all problems.

The above picture need not dishearten us. Every malady has a remedy. We have survived several crisis in the past, and we will, in the present and in the future too. The need is the positive response. That is why national integration is required. It would cure many of our diseases. What we need most is the revival of the basic values in our culture. They are humanism, liberalism, universalism and eclecticism. We have to develop broad outlook and tolerance, which is the hallmark of our country. Perhaps no country would excel India in this accommodative spirit of the past. In the ancient period, the Greeks, Scythians, Parthians and Huns came to India, and they got adjusted. In the medieval period, the Turks, Afghans, Mughals and Persians came to India, and they got adjusted. In the modern period, the Portuguese, the Dutch, the English and the French came to India, and they left their imprint without altering the basic character of our country. It is not the question now of foreigners getting adjusting or interacting with us to leave their impact. It is one of finding peace for our own nationals, our own near, dear, kith and kin to live together as members of one great family. Even this we are not doing, although our elders had done wonders. Asoka had the ability to renounce war in the midst of victory. Gandhiji could face the challenge of a mighty empire without weapons. Nehru could elevate a new nation to the leadership of Asia, although he commanded neither the military might of Russia nor the economic strength of America. We have not been able to solve even our petty quarrels. Hence, what we need most is the change of heart and mind, a sense of social responsibility, and a sense of pride, hope and faith in the future of our country.

National integration could be achieved only by our conscious effort. We have to be very clear about our goal. Fortunately, our elders have fixed that goal for us. It is our secular, socialistic and democratic state in which all would enjoy justice—political, social, economic and cultural. The fundamental rights enshrined in the Constitution are the sheet anchor of our liberty and freedom. The Directive Principles of State Policy are our gilded security for justice, equality and fair play. The direction of our march is well indicated. The job is only to cover the journey, and take the high road and not get lost in the bye-lanes. We are anxious for a short cut, but a short-cut is the longest of the long cut. Therefore, integration is possible only when we hold our constitution sacred, and believe in it as saints in God. Not merely belief and faith in it, but sincere, full and whole hearted action to implement it in its entirety.

Before we preach national integration we have to practise it. Preaching will have adverse value unless good examples are set. This has to be initiated at the individual level, then in the family, in the mohalla, in the town, in the region, in the state and finally at the national level. Each individual is a centre circumscribed by a circle, and that circle should enlarge until it touches the entire humanity. When a pebble is thrown in a lake, it makes a splash, then a circle, and that circle enlarges until it touches the shore. So too our righteous deeds must be, which initiated at personal level, must have an impact on our family, then in our town, on our state, nation and ultimately on the whole humanity. This requires minimising the areas of disagreement and maximising the areas of agreement until they become universal. Meeting, mixing, mingling, sharing, caring and helping each other would rub off the angularities, and we would know each other better. Small courtesies would go a long way in winning hearts. A smile gives greater light than electricity and costs much less, and even nothing. Some good gestures, helpful attitude, forget and forgive small frailities of man, patience and fortitude act as elixir to national integration.

To bring about national integration efforts should be made on a war-footing or else our survival is at stake. We have to use all media, all forums, and all opportunities to bring home among all the dire necessity to evolve a harmonious society with our composite culture. Social awareness must be brought in our youth not merely by instruction in the class room but also in all our co-curricular activities, such as debates, discussions, seminars, sports, social service camps and so on. In business, in industry, in services, and in all areas of national life, responsible persons should have national interests at heart, and not sectional, communal, regional or linguistic interests. This is very important. With the explosion in population, economic competitiveness has assumed dangerous proportions in releasing the lava of discontent. Unless this tide is stemmed by the captains of our industry, by the magnates of our business, by the leaders of our political parties, by the editors of our media, and by the keepers of our conscience—priests, pundits and mullahs—our future would be bleak. A century ago Tolstoy had said that the upper classes in Russia were "money-mad, status-mad, pleasure-mad, immoral and hypocritical who were thoughtlessly noisy and doggedly determined to sit on a volcano". Let us remember that those who do not learn from history are condemned to re-live it.

Great responsibility, therefore, lies on the shoulders of these influential persons who now control the destiny of our nation. Great responsibility lies also on the shoulders of our University dons who should realise that a University is not merely an information service centre, but a power-house to ignite creative thought and bring about a social change. They are the custodians of the youth of our country in whom they should plant seeds of knowledge which should fructify on the horizon of human fellowship. Education should help our youth to live harmoniously and graciously with one's own fellow being.

Our problem is not so much with ordinary folks, the rank and file of the society. Our villages are relatively free from communal virus or caste distinctions. The trouble mostly comes from the higher ups, from the enlightened and the educated, from the diverging views of our media, and from our thickly populated urban areas where keen competition results in rivalries. There is perfect harmony and understanding in the lowest strata of the society. No two crooks would disagree, but rarely do we come across our intellectuals agreeing on issues that confront the country. This is understandable as at higher level critical faculty assumes varied dimensions, but the difficulty is that their unhelpful intellectual exercise creates more problems for the nation.

National integration cannot be achieved unless we build moral philosophy of love, goodness, gentleness, kindness, humility, simplicity and naturalness. It is possible to achieve it only when individuals realise that if they give the best to others, the best will come back to them. Even if the return is slow, the explosive situation would be averted. If we cannot make others happy, let us not make them unhappy atleast. Secondly, the energy of the nation must be used for creative purposes and not in fissiparious tendencies. If we were to understand that to do our duty honestly at all times in all circumstances, is the highest form of culture, most of our problems would be solved. We have to first deserve a thing before we desire. In all sectors there is such a mad rush of the undeserving elbowing out the deserving that tensions are built up. We have to realise that happy people are those who are thankful to God for life's responsibilities, and not for its prizes. We should also realise that to be without some of the things we badly need is an indispensable part of happiness. Thirdly, we have to work hard in order to produce more. There is not enough for all at our growth rate of population. This requires industry, intelligence and skill. Whether it is in Germany or Japan, they work hard fingers to their bones. We are lazy. Go to China any part of the night people are working. Come to India any part of the day people are sleeping. If only we cut through the rock of inertia, life leaps like a geyser. If we work hard we will have plenty, and all tensions will disappear. Man is a miracle of genius because he is a miracle of labour. Finally, concern for the poor, the down-trodden, the unprivileged and the dispossessed is very essential. There should be no exploitation. There is a limit to their tolerance. If their lava bursts out, there will be upheaval, like the one in France in 1789. Therefore, the need is great for levelling up and levelling down. The rich should share their wealth with the poor, before the poor snatch it from their unwilling hands. National integration should touch the root of the problem, and provide all the basic needs of food, shelter and clothing.

In conclusion, we may say that national integration is the sentiment that cements the relations between man and man. It is the reinforcement of noble elements in man to overcome fissiparious tendencies. It is the acknowledgement of other peoples' rights to human dignity. It is a good gesture on the part of everyone to live in amity and concord. It is the

(*Continued on page 7*)

University Teacher in the Contemporary Society

Yoginder Singh Verma*

It is widely accepted that Universities can and indeed must play an important role in the building of a nation. An analytical look at the Indian universities reveals the fact that they are engrossed with numerous problems having complex magnitudes. Violence, disorder, indiscipline, discontentment and low morale are suitable terms which depict the university climate.

It is correctly said that the academic community lies in the heart of the present day academic sickness in the campuses environment. The main source of trouble lies in the teaching-learning process. Since Computer is still to pave its way to assume the role of a teacher, it is the university teacher who largely determines the teaching-learning process. University is rightly described as 'Knowledge industry' and teacher as the producer and retailer of knowledge. Any model of management which marginalises the role of machine and man in production can never achieve its objectives.

The traditional concept of university which considered university a 'think-tank' emphasised on the humanistic aspect and viewed universities as centres of pure scholarship. University teacher was considered as the mid-wife who nurtured students and gave birth to ideas. The teaching-learning process did not require the assistance of a third party as the teacher could perform the functions of a creation, dispersion and application of knowledge with the involvement of students. University teacher could successfully achieve his goals and assume the roles as expected from him by different segments of the society.

Post-war developments throughout the world necessitated the expansion of the university system and the establishment of multi-varsities. In India, particularly after Independence, the university system underwent remarkable changes. With increased pressure of admission-seekers a large number of colleges came into existence. These colleges sought affiliation to universities. Resultantly, universities started shouldering the responsibility of affiliation and certification. In order to perform these additional functions, a new sub-system became dominant. By and by this new sub-system, i.e. university administration flourished on the analogy of its counter-part in the government. The efficiency of the university came to be evaluated on the basis of its quickness in holding examinations and declaring results. A substantial portion of university resources was transferred towards financing this burden of university bureaucracy.

The real goal of the university got diluted with such low rated goals such as holding examinations and declaring results. Even different Educational Commissions did not view this aspect seriously. They did talk about improving the status of university teachers by providing attractive scales and better service conditions. Today the university teachers is confused about his role. He should critically analyse the university system and its super systems and identify his role.

By the term 'role' we mean the expectations of the society from an individual occupying a particular social position in the social system. The University teacher has failed to understand his real role in the university system. His role will be in consonance with the behaviour or pattern expected of him in a particular situation if he revises his role perception. Different metaphors are used to describe the university teacher. Some advocate him as an horticultural expert who sows seeds some of which fall on fertile land and some on barren. Others believe that the university teacher is an artist who like any artist in any sphere, attacks his task in the way only he can. He develops his own style and he expresses himself in his own ways. Each teacher being unique in his talent chooses his own direction.

The university teacher is to choose a particular set of goals which enables him to perform the roles expected of him. His choice will be influenced by the sub-systems and super-systems of the University system. The university teacher seeks the goals such as creation of knowledge, transmission of knowledge, synthesis of knowledge and application of knowledge to solve problems. The shape of these goals is determined by the influences or the expectations of supra-systems.

Students expect teachers to be their guides and toruch-bearers in their career selection and advancement. Parents of the students look at the teachers as very noble, self-sacrificing persons and super humans who have the responsibility of building the careers of their wards. The nation expects that the university teacher should search for excellence, innovate new methods and technology and lay down the foundation for a strong nation. Society looks forward for civilised citizens who strengthen its values and create a civilised society. Different political ideologies find university teachers more appropriate gardeners to plant their ideologies in the universities. University management expects that teachers should behave as obedient subordinates and execute what it decides. These different publics express their views and role expectations from the university teachers.

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While defining and understanding his own goal, the university teacher is also influenced by the different parts or sub-systems of the university system. Firstly, it is the physical and health system which affects faculty members. Physical facilities which assist him and extend a favourable environment to pursue his goals and perform a perceived role must be made available to him. A number of studies have concluded that physical amenities and working conditions which are known as hygeine factors reduce dissatisfaction and can remove the job irritants. If nation, society, students and university management expect him to be innovator, creator of knowledge and distributor of knowledge, there is no reason why he should not be provided a space to sit, work and rest.

Secondly, plant, equipment and supplies system which maintains buildings, furniture, books, supplies and tools that are needed for instruction, research and other functions of the university will also affect his performance. Thirdly, security system provides teachers the sense of safety. The security system is related to the legal system which includes all aspects of justice on the campus, law enforcement, trials and other legal proceedings, correctional measures and grievance redressal procedures, etc. Fourthly, it is the public relations system which creates attractive images of the university for prospective students, teachers, staff and prospective employers. Such images also change role expectations of the different external systems.

Last but the most important system that affects and determines teacher's role is management system which determines how other sub-systems are to be inter-woven. Amongst all these systems, management system is very significant because it exercises direct or indirect control over most of the sub-systems. The ancient university was managed by academicians. In the recent times, as the representatives of public and bureaucrats are the decision-makers at the top hierarchy of education, academicians do not get due participation in the management of universities. The university Acts, Statutes and Ordinances are prepared by legislatures at the behest of bureaucrats. It is but natural that the university teacher frustratingly encounters with this sub-system which hinders his role performance.

Although, it is logical that one should manage his own affairs under the democratic system, yet the question asked is who can manage university well. The claims are varied. University bureaucracy finds itself a more suitable manager. Government bureaucracy dominates all, of course only to what it is convinced about. Academicians cry to have the freedom of managing their own affairs. But the reality is that state and central governments exercise absolute controls over the universities through the amendments of University Acts, Statutes and Ordinances and increasing their influence over them from time to time. University autonomy has become political rhetoric and is just like a transparent veil which hides nothing except itself.

The university management has failed because it has wrongly understood the nature of university system. In fact, no serious attempts have been made to rationalise the university management system. University management system must be different from other organisations whether bureaucratic or adhocratic because of the peculiarities of university objectives and functions. According to management theory, ordinarily in an organisation top management takes strategic or policy decisions, middle management evolves monitoring plans and lower echelon management engages itself in execution. Unfortunately, the university managements have adopted this principle without understanding the implications of the univer-

TO OUR READERS

Knowledgeable and perceptive as they are, our contributors must not necessarily be allowed to have the last word. It is for you, the readers, to join issues with them. Our columns are as much open to you as to our contributors. Your communications should, however, be brief and to the point.

sity system. They have to find out the peculiarities of the university system and apply contingency theory to cater to the demand of the emergent system regarding the main objective of the university, viz. teacher-student and teacher-teacher interaction. Many decisions are taken in the class room, laboratory and practice sessions. The Executive Councils and Academic Councils are expected to monitor the policy decisions in view of a spectre of constraints. But with the dilution in composition of such authorities in favour of bureaucracy and politicians, serious encroachment is observed in the powers of other sub-systems. Vice-Chancellors perceive their role as administrators while they are to be managers who should ensure the academic freedom to faculty and plan, organise, direct and control the university bureaucracy in order to meet the challenge of increasing rush of admissions and examination load. The level of governments' interference in university management is evident from the recent incidence where fourVice-Chancellors of Bihar universities have been sacked.

I fully subscribe to the idea that the university teacher should do hard and persistent academic work to build an intellectual tradition and to meet the new demands of contemporary society. The mechanism of different sub-systems constrain him to perform different roles expected by different relevant systems. The out-burst of university and college teachers' frustration is very much evident from the movement organised in 1987 when about 2.5 lakhs teachers came out on the streets, though not happily, to restore their status.

How should university teacher respond in such a situation ? I think, being only one part of university system, he will not be able to immediately control other sub-systems namely—university bureaucracy, Govt. bureaucracy and the government which are more powerful systems.

Remedy only lies in rearranging his goals and changing his role and goal perceptions. In addition to earlier set of goals he should work for achieving academic autonomy which implies freedom in meeting the challenge of new knowledge and the resilence to meet new situations. He is to assume the role of a musician who elects to change the ragas as per the season and time. His outlook has to be dynamic and democratic. His responsibility is to acquire the academic freedom and bring out the best in himself and the best in his pupils. The lead has to come from the University alone.

Role-dilemma which university teacher is facing in the contemporary society poses more challenges to him. His accountability has increased in view of the society's expectations from him. His role has become more critical in the society which is ailing from chronic evils like population explosion, threats to national integration, poverty, low technological base and low work ethics. Despite the constraints noted above, there has to be self-realisation and identification of social aspirations. The University teacher has to come forward and reorganise his responsibilities which our society has thrust upon him. □

NATIONAL INTEGRATION

(Continued from page 4)

translation in action of the concepts of humanism, liberalism, tolerance and understanding. It is the movement of man from the baser level of selfish desires to a higher level of concern for others. It involves a bit of sacrifice to offer others something before we share it ourselves, a kind of feeling of "thy need is greater than mine". It requires discipline and self-sacrifice which would elevate human soul to high region of love, compassion, service and sincerity. It would level down the barriers of caste, creed and class, and would take the stand on the bedrock of humanity. Love and liberalism would be its basic concepts in operation. It would lead to greater harmony and solidarity in the society. It is an essential condition for peace, progress and prosperity of our nation—nay for our survival. It would unite all segments of our society into a filial bond of one family. In the complex organisation of modern life we will be groping in darkness without careful thought. National integration like the little candle which burns itself but gives light to others dispels the darkness of man's soul, and kindles the ray of hope for a bright future. Let us all lit this little candle in our heart ! □

The Purpose of Human Life

"In our craze for material growth and technological innovation, the real purpose of human life has been often overlooked. Faith and belief in higher things in life and not the state of technology ought to set the pace of human progress", observed Hon'ble Justice Chittatosh Mookerjee, Chief Justice, Bombay High Court while delivering the Convocation Address at the 25th Annual Convocation of Shivaji University, Kolhapur. He, however, hastened to add, "I do not, however, want to underestimate the role of science and technology in our lives......But along with technological progress we ought to re-establish value of judgement in our lives. We need to replace blind faith by scientific spirit which really means that our action and thought ought to be permeated by reason and objectivity". Excerpts.

Convocation

Endeavour of every human institution ought to be to serve the cause of humanity i.e. to promote mental and material progress for men and women. Ignorance, unreason, narrow mindedness inhibit development and progress, in fact these factors retard progress and development. The most important determinant in human affairs is the interaction between intellectual, psychological and economic factors. Beliefs, preferences and aspirations also affect a nation's progress in the future.

We may put the problem of progress in another way. Both collective and individual well being largely depends upon achieving a balance between (1) size of the population, (2) stage of technology, and (3) access to resources and allocation of resources. The balancing of the said factors requires making of moral as well as intellectual choice. In order to achieve right kind of allocation of human and material resources, a developing country like India with high rate of population growth needs rapid development of science and technology and spread of education. When we speak of technology we generally mean specialised learning or skill or applied scientific knowledge, ability to (1) harness mechanical energy, and (2) the process of transforming physical products into goods and services. The society began by learning the use of fire and domestication of animals and plants. Through the ages there have been remarkable advancements in scientific knowledge and technology. We have harnessed nuclear energy, made space travel a reality. Medicine has great achievements. Age of computers has arrived. Superconductivity may be developed in not too distant future. Biotechnology is likely to make momentous changes in life forms of plants and animals.

In spite of such momentous changes and prodigious growth of science and technology, one might still legitimately ask: are the human beings getting better or worse? Is not the human society proceeding from one crisis to another? Population problem, energy shortage, monetary and political crises seem to have become endemic. Does it not often appear that catastrophe and destruction of humanity is imminent? One reason may be we are yet to establish a right kind of society—a society which ensures intellectual freedom, has eradicated economic and social disparity, has achieved fair distribution of wealth and has secured amity, goodwill and peace amongst mankind. It seems that such a society is still a utopia and not a reality. One of the main reasons for this unfortunate state is that the human society did not achieve moral and ethical progress in the same degree to which science and technology were developed over the ages.

In our craze for material growth and technological innovation, the real purpose of human life has been often overlooked. Faith and belief in higher things in life and not the state of technology ought to set the pace of human progress. I do not, however, want to underestimate the role of science and technology in our lives. To lift the majority of the people of India from their present stage of poverty and degradation, science and technology must develop at a much faster speed. Only with the aid of science we can hope to overcome the gigantic problems which face our country. But along with technological progress we ought to re-establish value of judgement in our lives. We need to replace blind faith by scientific spirit which really means that our action and thought ought to be permeated by reason and objectivity. Our primaeval ancestors tried to explain the unknown and to solve problems by resorting to magic and religion. Let not the present man replace religion only by a new dogma of technology. We ought to establish a new faith and belief so that human beings remain masters and do not become slaves and robots of technology.

To achieve a value-based and meaningful life, we need right kind of education, i.e. the kind of education Swami Vivekananda in his lecture "The Future of India" had talked about :

> "Education is not the amount of information that is put into your brain and runs riot there, undigested, all your life. We must have life-building, man-making, character-making, assimilation of ideas. If you have assimilated five ideas and made them your life and character, you have more education than any man who has got by heart a whole library. The ass carrying its load of sandalwood knows only the weight and not the value of the sandalwood. If education is identical with information, the libraries are the greatest sages in the world, and encyclopaedias are the Risis."

The object of education has always been and still continues to be liberation of mind by developing it. Education must be able to stimulate reason and rationality. Dr. Radhakrishnan in one of his lectures had siad that the aim of education in India has been initiation into the higher life of spirit. The student is a wayfarer in spirit. Wisdom is not merely knowledge. According to Dr. Radhakrishnan, the supreme wisdom is the result of learning (vidya), reflection (chinta) and austerity (tapas). □

Dr. Shastri Remembered

It was a unique occasion recently when the Sanskrit Academy of Delhi Administration organised an all-India symposium on 'Rashtriya Ekta Mein Sanskrit Ka Yogdan' (Contribution of Sanskrit to the National Unity) to commemorate 76th birth anniversary of great Sanskrit scholar, philosopher, Indologist and linguist, late Dr. Indra Chandra Shastri who wrote 70 volumes and more than 600 research papers in his lifetime despite total blindness in the last 26 years of his life and was awarded 'Certificate of Honour's by the President of India for his outstanding contribution to Sanskrit. Dr. Shastri was Head of the Department of Sanskrit in the Institute of Postgraduate Studies, University of Delhi before attaining superannuation in 1961. From 1961-69 he worked under UGC scheme of Retired Professorship' on a project "Religion and Modern Man". A keen social activist, Dr. Shastri participated in the freedom struggle in 1940 and also worked for the eradication of the social evil of 'Bal Deeksha' in 1942.

The special feature of the symposium was the participation by scholars from four different religions who spoke in fluent Sanskrit. They were Pt. Gulam Dastgir, a Muslim scholar and Vice-chairman of Vishwa Sanskrit Bharati, Bombay; Dr. Jeet Singh Khokar, a Sikh scholar from Punjab; Km. T. Jacob, a Christian scholar, and Prof. (Dr.) Brijmohan Chaturvedi, Head of the Sanskrit Department, Delhi University. Sneh Suman, younger son of late Dr. Shastri presented a research article of his father 'Punjabi aur Pracheen Sanskrit' (Punjabi and the ancient Sanskrit) tracing the derivation of modern Punjabi words from ancient Sanskrit.

Dr. Balram Jakhar, Speaker of the Lok Sabha and the chief guest said on this occasion "Sanskrit has, for centuries, kept this country united like a necklace of pearls and even today can play an important role in preserving its unity and territorial integrity. The high ideals of Indian civilization and culture are enshrined and preserved in Sanskrit literature. The new generation can move in the right direction and realize its heritage, culture, traditions and life values only through the study of Sanskrit."

Dr. D.S. Kothari, Chancellor, JNU said Dr. Shastri was a great soul, who never lost his balance and mental poise even in heavy odds. He struggled throughout his life and never sought any favour from the society. The younger generation can take quite a few lessons from his life.

Dr. L.M. Singhvi, eminent jurist, in his homage to late Dr. Shastri said "It is but appropriate that we pay respects to the memory of late Dr. Shastri who, using his hard labour, intellect and sense of devotion, devoted his entire life, dedicated every moment to the enrichment of language, thoughts, literature and society. It would be in the fitness of things to hope that the Sanskrit Academy of Delhi and other similar organizations will spare no efforts to undertake the publication of entire works of Dr. Shastri. He was not only a learned scholar of Sanskrit but also that of Pali and Prakrit and the literature produced by him reflects the flow of Indian culture, its continuity. He was committed to fighting for social justice, to presenting new perspectives, new philosophy of life—the humane philosophy. It was this commitment that added lusture to his scholasticism."

Sh. Kulanand Bharatiya, Executive Councillor, Delhi Administration, who presided, recollected his long association with Dr. Shastri. □

Electromagnetics and their Applications

A two-day Seminar on "Electromagnetics & their Applications" was organised by the Department of Electronics Engineering of the Institute of Technology, Banaras Hindu University on 22-23 December, 1988. Inaugurating the Seminar Professor G.S. Sanyal emphasized the importance of Electromagnetics to the modern area of Communication, Computers and Biotechnology. He correlated the human thought process and other Bioelectromagnetic phenomena and traced the evolution of Satellite, Microwave, Fibre Optic Communication. He also traced the evolution, march and triumph of Electromagnetics in the past two centuries.

Professor R.P Rastogi, Vice-Chancellor, BHU, who presided, congratulated the department for its drive and academic activity and emphasized the role of long-wave communication. He was also appreciative of the faculty for the contribution it has made in the developmental and research efforts in this particular area.

In the ten Technical Sessions the seminar discussed more than 50 papers highlighting the research efforts in such areas as Microwave and Microstrip Antennas, O&M type Tubes, Leaky Wave and Surface Antennas.

Two invited talks, one by Professor E. Kasper of University of Tuebingen, Federal Republic of Germany on the "Advances in the Computer Aided Design of Electron Optics Systems" and the other by Professor B.N. Das of IIT, Kharagpur on "Applications of Conformal Transformation for Analysis of Striplines" were also delivered on the occasion.

The major areas of concern for the Electromagnetics today range from mm and sub mm wave Sources, Electro Optical Systems for Optical Communication and Optical Computers, Microwave Imaging and other Medical Applications and Interaction of Electromagnetic energy with the Living matter be it a Unicellular or Complex Organic Systems. Laser Therapy and Diathermy are the offshoots of such research just as CAT, PAT, ESR, NMR are the recent tools for diagnostics which depend on Electromagnetics. The energy research especially the fusion energy are the vital areas of intense activity as an alternative energy source. High temperature superconductivity and electromagnetics are other important areas for developing new Electronic Devices and Systems.

Computer and the Law

The National Law School of India, in collaboration with few other interested institution, is organizing a two-day Seminar on "Computer and the Law" on 28th and 29th January, 1989 at Bangalore. The objective of the seminar is :

(a) to provide the necessary computer literacy to participating law persons;

(b) to help appreciate the scope and potential of computer applications in the field of legal research, legal practice and judicial administration;

(c) to explore ways and means for developing software and a data base in law; and

(d) to prepare a plan for computerized law library system at NLSIU and other institutions.

The topics proposed to be discussed at the seminar include : (i) Computer Leteracy and Prospects for Application in Law; (ii) Computerised Library System and Scope of Application to Law Libraries; (iii) Approaches and Strategies in Developing Legal Data Base for Indian Needs; (iv) Computer Law and Education; and (v) Computerised Legal Information Services for the 1990s.

Further details can be had from Dr. N.R. Madhava Menon, Director, National Law School of India, Central College Compound, Bangalore-560001.

Madhya Pradesh Youth Festival

Jiwaji University, Gwalior, in collaboration with the Madhya Pradesh Government, organized a three-day Youth Festival from December 29 to 31, 1988 in which about 400 university students from 10 universities of Madhya Pradesh participated. The Youth Festivals being organised by the M.P. State since 1985 are hosted by different Universities on rotation basis.

The artists obtaining first position in different events were presented Rs. 3000/- each. The Youth Festival was inaugurated by Dr. K.K. Tewari, Vice-Chancellor. Shri I.M.N. Goyal, State Liaison Officer and Shri Sampson David, Cultural Officer, AIU were special invitees. Shri B.P. Dixit, Registrar, Jiwaji University, proposed a vote of thanks. The programme was coordinated by Dr. S. S. Senger, Director, Students Welfare, Jiwaji University.

News from Agril. Varsities

All India Conference on Cytogenetics

Prof. Jafar Nizam, Vice-Chancellor of Kakatiya University observed that the contribution of research in the fields of cytology and genetics had a tremendous impact on health, industry, food and on the overall well-being of man in general and of the society in particular. Prof. Nizam was inaugurating the 2nd All-India Conference on Cytology and Genetics held on December 28-30, 1988 under the auspices of the Kakatiya University, Warangal. He gave a brief resume of the advances recorded in the fields of cytology and genetics. Genetics created high yielding varieties of wheat and rice and of other crops which consummated in the concept of green revolution. He felt that like any powerful new technique, genetic engineering also involved potential hazard for society that must be assessed carefully.

Prof. Nizam said that during the last one decade, substantial strides have been made in biotechnology with particular reference to high yielding varieties, tissue culture propagation, biofertilizers, germplasm bank, production of vaccine and thereapeutic biomolecules. Referring to the chromosome technology which has made rapid discoveries with particular reference to human chromosomes, he said that localization of 'Fragile sites' on human chromosomes had opened up possibilities to identify certain common forms of inherited mental retardation in man. Chromosome mechanics in plant breeding had direct significance in the genetic engineering which made it possible now to transfer a gene from one plant to another. A lot of work is being done in the field of mutation breeding and with the help of a new technique of site directed mutagenesis, it is possible to induce desired mutants, Prof. Nizam added.

In his presidential address to the conference which was read in absentia, Prof. R.P. Roy of Patna Universiry, detailed various aspects of genetics and cytogenetics which have played a major role in projecting the future research and technology in the fields of cytology and genetics. He highlighted some of the areas pertaining to the cytogenetic approaches in the crop plants, chromosome manipulation and chromosome engineering and emphasized the relevance of cytogenetic research to the welfare of mankind.

He further highlighted the usefulness of genetic research in plant breeding which has revolutionised the production of food in our country in terms of yield, disease resistance and also for producing new varieties. Prof. Roy pointed out that the areas for research with regard to genetic improvement which should attract attention of the research workers included forest and fruit trees, oil seed crops and vegetable plants.

About 200 delegates from various parts of the country participated in the three-day conference at which 193 papers were presented.

Agricultural Technologies and National Integration

The Konkan Krishi Vidyapeeth, under the auspices of the Department of Youth Affairs & Sports in the Ministry of Human Resource Development, Government of India, organised an All-India youth camp on the theme "Spread of Agricultural Technologies and National Integration", for the benefit of the students of all the agricultural universities in India at Dapoli from 2nd to 9th December, 1988. One hundred and thirty five students from 13 agricultural universities participated in the camp inaugurated by Shri Shyamraoji Ashtekar, Maharashtra Minister of State for Sports & Youth Affairs.

In his address, Shri Ashtekar exhorted the student campers to take a pledge to dedicate themselves to preserve independence, democracy, secularism, socialism, unity, integrity and honour of the country. Dr. S. B. Kadrekar, Vice-Chancellor of the University, who presided, said that in conformity with the theme of the camp, the University had set up a permanent agricultural museum depicting newer and innovative agricultural technologies that it developed for the benefit of the farmers of the Konkan, besides the development of a 'Ekatmata Van' (Integration garden) so as to cherish the memory of this Camp.

Talks on the topics like national integration, Pandit Nehru and agrarian development, anti-addiction education, anti-dowry, role of women in rural development, importance of adult education in spread of newer agricultural technologies were arranged during the camp. Field visits of the campers to the historical places like Pratapgad (Mahabaleshwar), Suwarnadurga—the sea fort at Harnai, Dargah of Yokub Baba at Kelshi and agricultural Research Stations in the nearby areas were also organised.

The campers got an opportunity to see the plantation crops like Alphonso mango, cashew, arecanut, coconut, rubber and spice crops. They also got acquainted with the appropriate technologies developed by the Konkan Krishi Vidyapeeth, Dapoli in the fields of agriculture, horticulture, forestry, fisheries and veterinary sciences.

A New Pea Variety

The Institute of Agricultural Sciences of Banaras Hindu University has developed a new high yielding, disease resistant pea variety Malaviya Matar-2, following hybridization programme. The progeny from a top yielding F_2 plant from a cross Afila Knudt x C 5064 was raised in F_3 and the individual plants from it were crossed to the powdery mildew resistant parent S 143, and handled through normal pedigree method thereafter. Malaviya Matar-2 is resistant to powdery mildew disease, the most dreaded disease of pea. Besides resistance to powdery mildew disease, Malaviya Matar-2 outyielded all the varieties tested (including national checks T 163 and Rachna) during the three years of testing in All India Pea Coordinated Varietal Trials with grain yield ranging from 20-25 quintals/hectare. Its average plant height is 130-135 cm and matures in 115-120 days. The seeds are round white with restricted reticulation of testa adjacent to hilum. The other most important features of this variety are its semi-leafless nature (stipules present but the leaflets modified into tendrils) better light penetration, synchrony in maturity, lodging resistance and minimum bird and insect pest incidence.

The variety has recently been released for cultivation in North East-plain zone and Eastern zone.

News from UGC

Networking of University Libraries

The University Grants Commission (UGC) has chalked out an ambitious project to computerise the net-work of university libraries in the country at a cost of Rs. 200 crore. This was announced by Prof. S.K. Khanna, Secretary, UGC while inaugurating a scheme of computer education in Hindi at the Gujarat Vidyapith Ahmedabad. Though expensive the computer net-work would prove to be cheaper in the long run, as it would enable university libraries to exchange documents, books and technical journals for the benefit of the faculty and students.

UGC Research Associateships

The University Grants Commission (UGC) is reported to have selected 192 scholars for the award of research associateships in science, engineering, technology and humanities including social sciences, Gandhian studies, Nehru studies and national integration for the year 1986-87. Researchers belonging to Scheduled Castes/ Scheduled Tribes and physically handicapped categories are among the selected candidates.

The research associateships are awarded centrally by the Commission each year for doing post-doctoral research in different subjects and disciplines. The awards provide an opportunity to the selected scholars who have shown extraordinary talent and competence to take up research work independently or on project assignments.

The research associateships are intended for persons preferably below the age of 45 with doctorate degrees and published research works to their credit. In the case of women candidates the age limit is 55.

AIU News

Monitoring & Implementation of NPE

Accepting an invitation from the Ministry of Human Resource Development, Government of India, the Association of Indian Universities organised four regional seminars on monitoring of the implementation of the National Policy on Education-1986 and the Programme of Action in the various universities. These seminars were organised—one each at Delhi, Imphal, Pune and Madurai—between April and July 1988.

Over 160 delegates including Vice Chancellors, from the universities and other experts from all over the country participated in these four seminars at which eighteen topics were discussed in all.

These topics were grouped into four clusters so that one cluster could receive the attention in one seminar.

The main objectives of the seminars were :

(1) to record the present status of implementation in the tour clusters of topics;

(2) to identify impediments and constraints in implementation undertaken so far;

(3) to devise methodologies for monitoring and continuously evaluating the progress and, if possible, develop formats to a man the progress of implementation;

(4) to consider possible alternative strategies of implementation, particularly in the context of problems faced and to make practical suggestions for further implementation.

The proceedings of the seminars have been brought out by AIU in the form of a 126 page publication which includes a Report of the Seminars, Recommendations made at the Seminars and a Chapter on further proposed action.

News from Abroad

Training Programme in Maintenance of Biomedical Equipment

The French Government will organise a training programme on maintenance of biomedical equipment from 6-24 March, 1989. The objective of the programme is to train about twenty high level specialists having considerable experience in the biomedical field, from the seven asiatic countries of China, South Korea, India, Indonesia, Malaya, Philippines and Thailand. Training will be given on the organisation, management and execution of maintenance programmes in the area of biomedical equipment, focussing particularly on (i) formulation of fundamental trends, planning and development of technical branches; (ii) systematic planning of maintenance and repair; (iii) secondary information systems; and (iv) inventory control management systems.

The programme will centre around four main topics : (i) to find out suitable maintenance policies for each existing situation; in various hospitals of the participating countries; (ii) to plan an information network model for maintenance improvement; (iii) to formulate the rules for day to day maintenance management (personnel, tools, spare parts) and organisation (work planning, schedules, procedures); and (iv) to draw up a plan for training of personnel (engineers, technical officers, middle-order technicians).

Further details can be had from: The Resident Representative, United Nations Development Programme, 33, Lodi Estate, New Delhi 110 003; or The Deputy Scientific Counsellor, French Embassy, 2, Aurangzeb Road, New Delhi 110 011.

CLIMATE : Common Heritage of Humankind

The Foundation for International Studies at the University of Malta, Valletta, Malta supporting the initiative taken by Malta for declaring 'Climate' as the 'Common Heritage of Humankind' has issued a statement. Excerpts.

"There is perhaps no stronger factor than climate which determines the global physical well-being of the people of the world is that it affects not only their health but the very means of their sustenance.

"That global climate and weather should therefore be declared part of the common heritage is a measure which fully falls in line with the UNESCO project on the rights of future generations to their environment, and on intergenerational responsibilities thereon."

That project aims at creating a global awareness of the common heritage which we are bound to bequeath to future generations. It covers those resources which by their nature cannot and should not be appropriated by any one nation but should be harnessed and developed for the benefit of all men. They relate not only to seabed resources which will be fully protected, when the U.N. Convention of the Law of the Sea is ratified, but also to outer-space and Antaretica, as well as to genetic engineering in all its manifestations.

Ultimately, our common heritage rests on the accumulated knowledge and culture of mankind, and the corpus of scientific and technological progress is part of the collective patrimony of our species, a guarantee of its unity and a condition of its continuity.'

Through the International Environment Institute, the Foundation has received the brief from UNESCO to pursue this project on a world-wide basis. Regional meetings have been held in Latin America and in Asia; one is planned in Africa for next year followed by another one, for Europe and North America in 1990. The Foundation hopes that by 1991, enough progress will have been registered to call, under U.N. auspices, a world conference which will affirm the right of future generations to their environment and put into place a supra-national mechanism to protect those rights through the development of resources for that common good emanating from the first legacy of Nature's master.

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month', while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research Scholars and students of education are welcome to use these resources. The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

HUMANITIES

Philosophy

1. Anasuya Devi, A.R. *Tradition and modernity in contemporary religio-philosophic movements.* Venkateswara. Dr. D. Sridhara Babu, Director. Oriental Research Institute, Sri Venkateswara University, Tirupati.

2. Deb, Amiyansu. *Descriptive language : Inference and implication.* Calcutta.

3. Kalpana, B.G. *A research in the social philosophy of the Bhagavada Gita.* Bangalore. Dr. G.A. Jalihal, Reader, Department of Philosophy, Bangalore University, Bangalore.

4. Kanhaiya Singh. *Bhagwan Shri Rajneesh ka samaj darshan : Ek sameekshatmak adhyayan.* BHU. Prof. L. N. Sharma, Department of Philosophy, Banaras Hindu University, Varanasi.

5. Ramulu, Mandanapu Seeta. *Nature of causel laws : An analysis of causation in domain of science.* Osmania.

6. Sharma, Ambika Datta. *Baudh darshan mein swalakshan kee avadharana.* BHU. Dr. B.N. Singh, Reader, Department of Philosophy, Banaras Hindu University, Varanasi.

7. Shrivastava, Kamini. *Ayurvediya sanhita ke pariprekshya mein badavidya ka vikas.* BHU. Dr. Jyotir Mitra.

8. Singh, Shri Prakash. *Shrimad Bhagwat Geeta evam Charaksanhita ke darshnik tattvon ka tulnatmak adhyayan.* BHU. Prof. L.V. Guru.

Religion

1. Barua, Subhra. *A study and critical edition of the Sacca-Sankhepa.* Delhi.

2. Sayyid Ahsan. *Trends in Islam in Saudi Arabia.* Aligarh. Dr. Mahmudul Haq, Prof., Department of Islamic Studies, Aligarh Muslim University, Aligarh.

3. Sharma, Seema. *A historical study of places of Buddhist interest based on Pali sources.* Delhi.

4. Thakur, Amarnath. *History of Buddhist synods in India and abroad.* Delhi.

Fine Arts

Sculpture

1. Mukerji, Alaknanda. *Toys and dolls of Bengal (W. Bengal and Bangladesh).* BHU. Dr. R. Das Gupta, Reader, Department of History of Arts, Banaras Hindu University, Varanasi.

2. Singh, Ajit Pd. *Khajuraho kee Shaiv evam Shakta pratimayen.* BHU. Dr. B. Srivastava, Reader. Department of History of Arts, Banaras Hindu University, Varanasi.

Music

1. Gohedkar, Sandhya. *Khyal dhrupad ka pallavit roop.* Awadhesh. Dr. P.L. Gohedkar, Department of Music, Govt. Girls College, Rewa and Dr. Suhasini Khale, Department of Music, Govt. Girls College, Rewa.

2. Sharma, Somkartik. *Vindhya shilp murtiyon mein sangeet rupankan, 900 se 1250 isvi tak.* Awadhesh. Dr. S.K. Banerjee, Department of Music, Kamla Nehru Girls College, Satna.

Language & Literature

English

1. Dogra, O.P. *Theme of illusion and reality in Edward Albee's plays.* H.P.

2. Joshi, Madhu. *The theme of slavery in the nineteenth century American fiction.* Kumaun. Dr. D.K. Lal.

3. Krishna Murthy, C. *The poetry of Edward Thomas, 1878-1917.* Venkateswara.

4. Lal, P. B. *Leavis on Lawrence.* Bhopal. Dr. M.C. Saxena, Prof. and Head, Department of English, M.L.B. College, Bhopal.

5. Maiti, Kartik Ch. *William Butler Yeats as a literary critic.* Calcutta.

6. Meerabai, K. *Women as presented by women writers of Indo-Anglian fiction with particular reference to Kamala Markandeya, Anita Desai, Nayantara Sehgal and Ruth Prawar Jwala.* Venkateswara. Prof. M V. Rama Sarma, 18/96, K.T. Road, Tirupati.

7. Mishra, Santosh Kumar. *The destiny of man in the novels of Raja Rao.* BHU. Dr. R.K. Shukla, Reader, Department of English, Banaras Hindu University, Varanasi.

8. Padma, M. *Shakespeare's religious drama with special reference to his tragedies and tragi-comedies.* Venkateswara. Prof. G. Nageswara Rao, Department of English, Sri Venkateswara University College, Tirupati.

9. Prabhaker. *The poetry of D.H. Lawrence : A study of developing vision.* BHU. Dr. R.K. Shukla, Reader Department of English, Banaras Hindu University, Varanasi.

10. Rao, Bhargavi P. *Use of myth in contemporary Nigerian literature : A study of Achebe Soyinka and Okigbo.* Osmania.

11. Rastogi, Indu Rani. *P.B. Shelley and Indian thought.* BHU. Dr. R.K. Banerji, Reader, Department of English, Banaras Hindu University, Varanasi.

Russian

1. Balakrishnan, V. *Influence of Russian on Malayalam literature.* Karnatak. Dr. D.B. Dhawan, Reader, Department of Studies in Foreign Languages, Karnatak University, Dharwad.

French

1. Chatterjee, Abha. *Nathalie sarraute la domination de L' autre par le langage (le langage at le pouvoir).* JNU. Prof. K.J. Mahale, Centre of French Studies, Jawaharlal Nehru University, New Delhi.

2. Dasmahapatra, Swapan Kumar. *La poetique sanskrite et la poetique occidentale : A propos du vakroktijivita de kuntaka.* BHU. Dr. P.K. Jha, Prof. and Head, Department of French, Banaras Hindu University, Varanasi.

Sanskrit

1. Bisht, Champa *Brahmsutra Shankar Bhasya evam uskee pramukh tikaon mein vedantetar maton ka khandan : Ek adhyayan.* Kumaun. Dr. J.D. Upreti.

2. Bisht, Ganga. *Sanskrit natakon mein abhivyakt rajniti ke tattwa : Bhas se Vishakhdutt tak.* Kumaun. Dr. J.D. Upreti.

3. Chaturvedi, J. N. *Rigveda ke dasham mandal mein chitrit samaj.* BHU. Dr. P.D. Singh.

4. Dave, Harshida Himmatlal. *Kavi Gangadhar Shastri Mangalkar yanchi Sanskrit granth sampada : Ek adhyayan.* Nagpur. Dr. K.R. Joshi, Department of Sanskrit, Nagpur University, Nagpur.

5. Dubey, Shail Kumari. *Moharaja Parajaya : Ek parisheelan.* BHU. Dr. R.P. Dwivedi.

6. Goswami, Malinee. *A text critical edition and critical exposition of Vighnesajanmedaya of Gaurikanta Dvija.* Gauhati. Dr. M. M. Sharma, Prof. and Head, Department of Sanskrit, Gauhati University, Guwahati.

7. Joshi, L.D. *Mahabharat mein varnashram vyavastha : Ek sameekshatmak adhyayan.* Kumaun. Dr. H.N. Dixit.

8. Lohani, Jaya. *Bhartiya darshan shastron ke anusar shabd swarup evam pad padarth vivechan.* Kumaun. Dr. D.R. Tripathi.

9. Ojha, Paras Nath. *Puraneshu Jyotish Sidhantatattvasamikshanam.* BHU. Dr. Chandrama Pandey, Reader, Department of Jyotish, Banaras Hindu University, Varanasi.

10. Pande, Jaya. *Aviparyat Vigyan Bhikshn virachit sankhya pravachan bhasya ka sameekshatmak adhyayan.* Kumaun. Dr. H.N. Dixit.

11. Rai, Kalendra Kumar. *Gopath-Brahman mein chitrit samaj.* BHU. Dr. K. P. Singh, Reader, Department of Sanskrit, Banaras Hindu University, Varanasi.

12. Sankhyan, Dhani Ram. *Rupa Goswami ke kavyon kee darshnik prishthbhoomi ka adhyayan.* Panjab.

13. Sharma, Abha. *Dashroopak evom Natyadarpan ka tulnatmak adhyayan.* Kumaun. Dr. H.N. Dixit.

14. Sharma, Poonam. *A critical study of Ram kavyas in Sanskrit literature with special reference to Janki Haran of Kumardas.* Panjab.

15. Sharma, Sandhya. *Bisaveen sati ke rashtriya bhavana parak satak kavyon ka adhyayan.* Delhi.

16. Sitaramacharyulu, Vedala, Venkata. *A critical study of vedic and non-vedic darsanas.* Andhra.

17. Tinaratana, Pratuang. *A critical study of the tenth mandala of Rigveda, 101-191 hymns.* BHU. Prof. V.K. Verma.

18 Tiwari, Ravindra Nath. *Sanskrit sahitya mein varnit dhyut-krida.* BHU. Dr. R.B. Singh.

Punjabi

1. Sukhjit Kaur. *Comparative study of the female characters of Nanak Singh and Prem Chand.* Panjab.

Hindi

1. Bhakuni, B.S. *Sumitra Nandan Pant ke kavya ka manovaigyanik adhyayan.* Kumaun. Dr. S.S. Bisht.

2. Bhaskara Rao, T. *Chhayawadottar prabandha parikalpana.* Venkateswara. Prof. S.T. Narasimhachari, 91/2, East Prakasam Road, Malleswaram, Bangalore.

3. Bisht, J. S. *Kavivar Maithilisharan Gupta ke kavya mein alankar vidhan.* Kumaun. Dr. L.K. Mishra.

4. Chandwani, Jiwatram Moolchand. *Premchand kee kahaniyon mein samsamayik paristhitiyon ka pratifalan.* Nagpur. Dr. Durgashankar Mishra, Department of Hindi, P.W.S College, Nagpur.

5. Chaudhary, S. *Jainendra ke shilp ka vikasatmak adhyayan.* Kumaun. Dr. R.K. Gupta.

6. Dubey, Nawalkishor. *Shuklottar Hindi sameeksha mein kavya tattwa vivechan.* Magadh.

7. Fardel, Sarb Jeet Darshan Singh. *Jaishankar Prasad ke kavya ka saundaryashastriya adhyayan.* Baroda.

8. Jain, Rukmani. *Tulsi sahitya per Srimad Bhagwal ka prabhav.* Delhi.

9. Jaitly, Mohan Gopal. *Acharya Hazari Prasad Dwivedi ke upanyason mein sanskritik chetna.* BHU. Dr. R.N. Verma, Prof. Department of Hindi, Banaras Hindu University, Varanasi.

10. Joshi, Deepa. *Sathottari Hindi kavita kee bhasha, 1960 se 1980 tak.* Kumaun. Dr. Neerja Tandon.

11. Joshi, R.C. *Gorakhpanth ka Kumauni lok-sahitya per prabhav.* Kumaun. Dr. D.D. Tewari.

12. Joshi, Y.K. *Kumauni kee Danpuria upboli ka bhashavaigyanik adhyayan.* Kumaun. Dr. S.R. Sharma.

13. Kotvalivale, Pratibha. *Marathi evam Hindi kee bhakt kaviyitrion ka anusheelan.* Ravishankar. Dr. (Smt) Satyabhama Adil, Prof. and Head, Department of Hindi, Govt. Girls P.G. College, Raipur.

14. Kusum Kumari. *Adhunik Hindi kavita : Samajik drishti aur sanrachana, san 1960 se san 1980 tak.* BHU. Prof. Tribhuwan Singh, Department of Hindi, Banaras Hindu University, Varanasi.

15. Meera. *Upanyaskar Hajari Prasad Dwivedi : Aitihasik sandarbh aur adhunik bodh.* BHU. Prof. Tribhuwan Singh, Department of Hindi, Banaras Hindu University, Varanasi.

16. Mehta, Ram Nath. *Hindi ke riti granthon ka kavyashastriya vivechan.* HP.

17. Mishra, Kamlesh. *Gopal Rai ke kavya mein abhivyaki vidhan.* Kumaun. Dr. M. Pathak.

18. Ojha, Krishna Nath. *Adhunik Hindi kavita aur sangeet : Samajik parivartan ke pariprekshya mein.* BHU. Dr. M. R. Gautam.

19. Ojha, Raja Ram. *Gurudutt ka upanyas sahitya.* Osmania.

20. Pandey, R. C. *Nirala ke kavya ka chhandshastriya adhyayan.* Kumaun. Dr. H.B. Gahtori.

21. Paneru, B. R. *Swatantrayottar Hindi katha sahitya mein Bharat vibhajan kee samasya : Samajik pariprekshya mein adhyayan.* Kumaun. Dr. D.K. Paneru.

22. Parihar, Jawaharlal Singh. *Satthottari pirhi kee kavita mein pratik bimb evam mithak.* Awadhesh. Dr. Bhagwati Prasad Shukla, Dwarika Nagar, Urrahat. Rewa.

23. Pathak, D.D. *Ritimukt kavya ka saundarya shastriya parisheelan.* Kumaun. Dr. R.K. Gupta.

24. Rai, Bidhan Chandra. *Bachchan aur unke bad kee Hindi geet dhara.* BHU. Dr. Mangla Prasad.

25. Sharma, Shail. *Manak Hindi aur Chhattisgarhi ke saman shabdon ka arthvaigyanik adhyayan.* Ravishankar. Dr. G.P. Shrivastava, Department of Linguistics, Ravishankar University, Raipur.

26. Shrivastava, Alka. *Swatantrayottar mahila katha lekhan mein mulya sankraman kee abhivyakti aur Mannu Bhandari ka katha sansar.* Ravishankar. Dr. S.J. Kekre, Department of Hindi, Govt. Girls College, Durg.

27. Shukla, Ashok Kumar. *Satven dashak ke Hindi katha sahitya mein vaicharik avadharana evam manviya samvedana ka anusheelan.* Awadhesh. Dr. Bhagwati Prasad Shukla, Dwarika Nagar, Urrahat, Rewa.

28. Singh, Devendra Prasad. *Rohtas Jile kee boli ka bhasha vaigyanik adhyayan.* BHU. Dr. (Mrs) Chandrakala Tripathi.

29. Singh, Rajyasri. *Hindi bal sahitya aur bal-manovigyan.* BHU. Dr. Vishwa Nath Mishra.

30. Singh, Shri Ram. *Bhaktiyugeen Krishna Bhakti Kavya mein lok sanskriti : Sur kavya ke vishesh sandarbh mein.* BHU. Dr. N.N. Upadhyaya, Reader, Department of Hindi, Banaras Hindu University, Varanasi.

31. Singh, Surendra Nath. *Ach arya Nandadulare Vajpayee kee sameeksha-chintan.* BHU. Dr. S.N. Dwivedi.

32. Soni, Aruna. *Madhyakaleen Hindi aur Gujarati sahitya mein Krishna bhakti kavya ka tulnatmak adhyayan : Vallabh Sampradyaya evam Swami Sampradaya ke sandarbh mein.* Bhopal. Dr. S. Bhatnagar, L-98, Kotra Sultanabad, Bhopal.

33. Srivastava, Kunti. *Kabir Bijak mein sadhna ke swarup.* BHU. Dr. R.S. Dubey.

34. Surendra Prasad. *Hindi madhyakaleen kavya mein Khadaritu evam Barahmasa varnan kee parampara.* BHU. Dr. Vidyotma Mishra.

35. Thomas, M.J. *Hindi kee pragativadi kavita : Trilochan kee kavita ke vishesh sandarbh mein.* CUST. Dr. A. Aravindakshan, Reader, Department of Hindi, Cochin University of Science and Technology, Cochin.

36. Tiwari, Umesh Dutta. *Kanhawat kee pramanikta aur uska sanskritik adhyayan.* BHU. Dr. Z.A. Zafri.

37. Waswani, Bhagwanti Hariram. *Mohan Rakesh ka kahani sahitya shilp vidhan evam chintan.* Nagpur. Dr. Durgashankar Mishra, Department of Hindi, P.W.S. College. Nagpur.

Urdu

1. Abbasi, Mohammad Tahseen. *Shad Azeemabadi : Hayat aur karname.* BHU. Dr. Qamar Jahan.

2. Atiya Sultana. *A critical edition of Diwan-o-Ghawasi and evaluation of his poetry.* Osmania.

3. Fariyad Ali. *Urdu aur Hindi kee rumani shairi ka tangeedi mutalea.* Jamia. Prof. Mohd. Shamim Hanfi, Head, Department of Urdu, Jamia Millia Islamia, New Delhi.

4. Habibullah. *Azamgarh aur Urdu Shairi.* BHU. Dr. S.H. Naqvi.

5. Shaik Habibunnisa Begum. *Mohammed Baqer Agha's editing of Urdu Deewan.* Venkateswara. Prof. R.U. Ahmed, C/o Pabush Shifa, Karam Ali Street, Meerut City.

6. Siddiqui, Hajra Khatoon. *Maulana Rashidul Khairi: Hayat aur karname.* HS. Gour. Dr. M.S. Siddiqui, Head, Department of Urdu and Persian, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

Bengali

1. Bhattacharyya, Jayanti. *Rabindra dristete Mahamanab Santa : Sadhak-o-karmayogi.* Calcutta.

2. Bose, Jaya. *Shree Ram panchalite bhakti.* Bihar. Dr. A.K. Ghosh, Department of Bengali, University of Bihar, Muzaffarpur.

3. Das, Satyajyoti. *Samkaleen rajnaitik o samajik prekshapate Rabindra tattwa nataker mulyankan.* Calcutta.

4. Misra, Asok Kumar. *Bangali manasa samajmukhi kobita-o-ganer pratikriya, 1850-1910 : A literary cum social study.* Calcutta.

Manipuri

1. Khan, Abdul Gaffar. *A contrastive study of Manipur (Meiteilon) and English phonology.* Gauhati. Dr. G. C.

Goswami, Senior Prof. and Head (Retd), Department of Assamese, Gauhati University, Guwahati.

Gujarati

1. Pandya, M.C. *Published literature of Raghuveer Chaudhari upto 1983.* Saurashtra. Dr. R.M. Shukla, Reader, Department of Gujarati, Saurashtra University, Rajkot.

Tamil

1. Krishnan, N. *Social stratification of Tamil in Nagercoil.* Madurai.

2. Ramachandran Nair, N. *Feature and problems of social folk ballads in Kanyakumari District.* Madurai.

3. Selvam, P. Maria. *Tamil film songs : A critique, 1978-82.* Madurai.

4. Shanmugam, P. *An evaluation of the impact of Nayaks rule on Tamil literature, 1350 A.D. 1750 A.D.* Venkateswara.

5. Stephan Sam, N. *Folklore of fishermen in Kanyakumari District : A study.* Kerala. Dr. K. Subramoney, Prof. and Head, Department of Tamil, University of Kerala, Kariavattom.

6. Sundaram, M. Meenakshi. *Tamil proverbs in Ramnad District.* Madurai.

7. Varadarajan, M. *Panneerayira-p-padi : A study.* Venkateswara. Prof. P. Sourirajan, Department of Tamil, Sri Venkateswara University College, Tirupati.

Malayalam

1. Leelamony, R. *Works of E.V. Krishna Pillai : A study.* Kerala. Dr. P. V. Velayudhan Pillai, Prof., Department of Malayalam, University of Kerala, Kariavattom.

2. Narayanan Namboodiri, S. *Venmani Prasthanam : A study in literary criticism.* Kerala. Dr. K. Ramachandran Nair, Prof. and Head, Department of Malayalam, University of Kerala, Kariavattom.

Telugu

1. Anandan, K. *A critical study of Vedanta Rasayanam.* Venkateswara. Dr. K. Sarvottama Rao, Department of Telugu Studies, Sri Venkateswara University College of Arts and Sciences, Tirupati.

2. Bhaskara, Gollakota Surya. *Dandaka literature in Telugu.* BHU. Prof. J.S. Prakasa Rao.

3. Chennappa, M. *Prachina kavyalu : Gramina jivana chitranamu.* Osmania.

4. Damodara Naidu, K. *A critical study of Dr. Kommuri Venugopal Rao's novels.* Venkateswara. Prof. M. Subba Reddy, Department of Telugu, Sri Venkateswara University College, Tirupati.

5. Mahalakshmamma, D. *Critical study of C.R. Reddy : Life and works.* Venkateswara. Dr. G. Chalapathi, Lecturer, Department of Epigraphy, Sri Venkateswara University, Tirupati.

6. Mohan Reddy, A. *Wanaparthi Samsthanamu : Telugu sahitya seva.* Osmania.

7. Mythili, G. *Thyagaraja Krutulu-alankara saundaryamu.* Venkateswara. Dr. K J. Krishnamoorthy, Oriental Research Institute, Sri Venkateswara University, Tirupati.

8. Rajani, M. *A critical study on the works of Gollapudi Maruthi Rao.* Venkateswara. Prof. G Nagaiah, Department of Telugu, Sri Venkateswara University College, Tirupati.

9. Ramachandraiah, N. *Life and literary works of Dr. Uppala Lakshmana Rao.* Venkateswara. Dr. P.C. Narasimha Reddy, Department of Telugu, Sri Venkateswara University College, Tirupati.

10. Siva Kumar, G. *Children's literature in Telugu with reference to stories.* Venkateswara. Sri G. Sivakumar, D.V. R. Palle, Siddhartha Convent, Guntur.

11. Sivappa, D. *Tallapaka annamayya sahityam-o-Telugu Nadu.* Venkateswara. Dr. K. Sarvottama Rao, Department of Telugu Studies, Sri Venkateswara University College of Arts and Sciences, Tirupati.

12. Sudarsanacharyulu, R.S. *The story and characterisation of Hunuman in Telugu literature.* Venkateswara.

Geography

1. Biswas, Krishna. *Soil productivity of a part of the Mayurakshi-Bakreswar interfluve, Birbhum, West Bengal.* Burdwan. Prof. Nikhil Krishna De, Department of Geography, University of Burdwan, Burdwan.

2. Gupta, Babu Lal. *Market morphology of Jaipur : A geographical analysis of metropolitan city.* Rajasthan. Prof. Indra Pal, A-14, Anita Colony, Gandhi Nagar Railway Station, Jaipur.

3. Lahiri, Manosi. *Climate and comfort in Indian cities.* Delhi.

4. Manjula Devi, A. *An analysis of small scale manufacturing growth and spatial distribution of industrial modes in South Tamil Nadu.* Madurai.

5. Manral, J.P.S. *Land use patterns in the mountainous tract of Distt. Nainital.* Kumaun. Dr. S.C. Joshi.

6. Murugesan, N. *Health care and health care delivery system in a regional frame work : A case study of spatio functional organisation of Salem District.* Madurai.

7. Pant. M.C. *Janpad Nainital ke parvatiya prabhag ka sookshma stariya niyojan.* Kumaun. Dr. D.R. Joshi.

8. Qureshi, Sheikh Qadeer. *Development in Madhya Pradesh : A study in regional development with special reference to Western Madhya Pradesh.* HS Gour. Dr. S K. Shukla, Reader, Department of Geography, Dr Harisingh Gour Vishwavidyalaya, Sagar.

9. Rai, Bal Krishna. *Agriculture, nutritional level and rural health in the Upper Narmada Basin, Madhya Pradesh.* HS Gour. Dr. Kailash Choubey, Asstt. Prof., Department of Geography, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

10. Rai, Durga Prasad. *Water resources of the Azamgarh District, U.P. : A study in agricultural hydrogeography.* BHU. Dr. V.R. Singh, Reader, Department of Geography, Banaras Hindu University, Varanasi.

11. Ram Sahaya. *Kumaun ke parvat padiya nagaron ka akarikiya vikas.* Kumaun. Dr R P. Upreti.

12. Sen, Ashis Kr. *Water balance and land use planning : A case study of the Upper Damodar Basin* Burdwan. Prof. Monoranjan Chaudhuri, Prof. (Retd), Department of Geography, University of Burdwan, Burdwan.

13. Sen, Asok Kumar. *Soil characteristics and land use of Usri Basin, Bihar.* Calcutta.

14. Singh, Janardan Prasad. *Changing pattern of land use and population in Buxar : A geographical analysis.* Magadh.

15. Singh, Umesh Kumar. *Social facilities and development aspects of Dobhi Block, Jaunpur, U.P.* BHU. Prof. K.

N. Singh, Reader, Department of Geography, Banaras Hindu University, Varanasi.

16. Singhal, Gulab Chand. *Frequency of environmental and nutritional deficiency health hazards in Sagar Division, Madhya Pradesh.* HS Gour. Dr. Kailash Choubey, Asst. Prof., Department of Geography, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

17. Tiwari, Pramod Kr. *Rural poor, poverty and development strategy in Niyamatabad Block, District Varanasi.* BHU. Dr. P.B. Sharma.

18. Upadhyay, Shail Bala. *Jaipur city : Its urban landuse problems and planning.* BHU. Dr. K.K. Dube.

19. Verma, Rita. *Socio-economically backward classes in Madhya Pradesh : A geographical study of the scheduled castes and scheduled tribes.* HS Gour. Dr. D.S. Shrivastava, Reader, Department of Geography, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

History

1. Ali Athar. *Army organisation under the Sultans of Delhi, 13th to 15th centuries.* Aligarh. Prof. K.N.J. Nizami, Department of History, Aligarh Muslim University, Aligarh.

2. Anjani Kumar. *Niyoga in Ancient India, from earliest times up to Buddhist Age.* Magadh.

3. Basu Nirban. *The working class movement in Eastern India, 1937-47.* Calcutta.

4. Choubey, Chiranjivi. *Bihar mein swatantratata sangharsh, 1919-1941.* BHU. Dr. J.P. Mishra.

5. Dubey, Ram Chandra. *1942 mein Uttar Pradesh.* BHU. Dr. A S. Singh.

6. Khan, Muhammad Afzal. *Iranian nobility under Shahjahan and Aurangzeb.* Aligarh. Prof. M.A. Ali, Department of History, Aligarh Muslim University, Aligarh.

7. Kundu, Kamal Kumar. *Arts and cultural traditions of Sutradharas of Bengal.* Calcutta.

8. Mishra, Vijay Nath. *Puranon main pratibimbit Siva* BHU. Dr. M. Prasad, Reader, Department of Ancient Indian History, Culture and Archaeology, Banaras Hindu University, Varanasi.

9. Pant, Usha. *Bharatiya rashtriya andolan mein Almor Janpad ka yogdan.* Kumaun. Dr. H.K. Mittal.

10. Patra, Rushi Charan. *Studies on the political and social History of modern Orissa, 1937-67.* Sambalpur. Dr P.K. Mishra, Prof., Department of History, Sambalpur University, Burla.

11. Qadri, Fozail Ahmad. *Muslim-mystic trends in India during the 18th century.* Aligarh. Prof. K.N. Nizami, Department of History, Aligarh Muslim University, Aligarh.

12. Ray, Sachindranath. *Nature and distinction of literature and culture of Cooch Behar under the kings.* NBU.

13. Selvakumar, V. George. *The history of identured labour in the Annamalai Hills from 1896 to 1946.* Madurai.

14. Singh, Birendra Kumar. *The people of Ancient Bihar : A socio-economic study A.D. 500 to 1200 A.D.* Magadh.

15. Singh, Gyanti. *Mughalon kee arthik niti aur Bengal mein Angreji East India Company ka abhudaya.* BHU. Dr. S.C. Mukhopadhyay.

16. Singh, Rachna. *Sarojini Naidu.* BHU. Dr. (Miss) K.S. Santha.

17. Singh, Reena. *Maurya yugeen Bharat ka arthik itihas.* Magadh.

18. Subramanyam Reddy, D. *Anti-British revolts in Andhra : A study of the poligars of Chittoor pollams, 1801-1805.* Venkateswara. Prof. V. Kameswara Rao, Department of History, Sri Venkateswara University College of Arts and Sciences, Tirupati.

19. Sudhakar, G.J. *Co-operative handloom industry in the Madras presidency. 1935-53.* Osmania.

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A List of Select Articles and Editorials on Education from Newspapers Received in the AIU Library during December, 1988.

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EDUCATIONAL SOCIOLOGY

EDUCATING THE DAUGHTERS (*Editorial*). *The Tribune* 30-12-88.

EDUCATIONAL POLICY & PLANNING

NEP IN TROUBLE (*Editorial*). *The Hindu*, Dec. 30, 1988.

EDUCATIONAL ADMINISTRATION

Amrik Singh. Reform of universities : Start with admissions. *Deccan Herald* 19-12-88.

———Varsity entry only on merit. *The Hindustan Times* 19-12-88.

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BENDING THE RULES (*Editorial*). *The Statesman*, 14-12-88.

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Chauhan, C.P.S. Reorganising methods of teacher recruitment. *The Hindu* 27-12-88.

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Di Yes (Pseud). Should the teacher wield the cane? *Deccan Chronicle* 7-12-88.

Sen, Amitabha. Case for merit promotion. *Amrita Bazar Patrika* 21-12-88.

Sharma, D.R. UGC, listen. *The Tribune* 17-12-88.

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Bass, Alison B. Computers in classroom I & II. *The Indian Nation* 18-12-88 & 19-12-88.

Gorton, Philip. Educational radio making headway. *The Pioneer* 30-12-88.

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Bora, Kamaleswar. Students movement in Assam. *The Assam Tribune* 24-12-88.

PHYSICAL EDUCATION & SPORTS

Menon, Suresh. So whats' new ? *Indian Express* 4-12-88.

SPECIAL EDUCATION

Murali, Lalitha. A constructive attitude towards the slow learners. *The Hindu* 27-12-88.

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Benjamin, Thomas P and Abel, Rajaratnam. Adult literacy : A herculean task. *The Hindu* 20-12-88.

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CLASSIFIED ADVERTISEMENTS

VIKRAM UNIVERSITY
UJJAIN

No. Dev./Estt/SS/89/1/4187

Dated : 30-12-88

ADVERTISEMENT

Applications, in prescribed forms, are invited for the following Teaching Posts so as to reach the undersigned on or before **20th February 1989.**

Name of Post	No. of Posts	Details including specialization, if any.
PROFESSOR	3	**One each in BOTANY** (lien post upto 31-7-90), **ECONOMICS** and **LIBRARY AND INFORMATION SCIENCE.**
READER	12	**One each** in **BOTANY** (Plant protection), **GEOLOGY** (Applied Geology), **ZOOLOGY** (Leave vacancy upto 15-12-1990), **STATISTICS** (Applied Statistics), **MATHEMATICS** (Distribution theory), **ENGLISH** (For Language Teaching Centre), **LIBRARY AND INFORMATION SCIENCE AND COMPUTER SCIENCE APPLICATION.** **Two each in POLITICAL SCIENCE** (One under University Leadership Programme Specialized in Production of Teaching Material cum Translation. Persons with published work need only apply) and **SANSKRIT** (One for **JOINT DIRECTORSHIP IN SCINDIA ORIENTAL INSTITUTE)**
LECTURER	14	**One each in HINDI, ECONOMICS** (Econometrics), **Commerce** (BUSINESS MANAGEMENT), AND **GEOLOGY.** **Two each in COMPUTER SCIENCE APPLICATION, AND POLITICAL SCIENCE** (One in Public Administration and another a lien post upto 21-10-1990). **Three each in ENGLISH AND PHYSICS** (One in X-ray Spectroscopy and another is a temporary leave Vacancy upto 30-6-1989).

Pay Scales

Professor : 4500-150-5700-200-7300
Reader : 3700-125-4950-150-5700
Lecturer : 2200-75-2800-100-4000

The minimum essential qualifications and other terms and conditions of the above posts are the same as prescribed by the University Grants Commission. The prescribed application forms alongwith desirable requirements etc. can be obtained, from the undersigned on payment of Rs. 10/- in Person or by sending crossed Indian Postal Order payable to Registrar, Vikram University, Ujjain. If the form is required under Registered post, Postal Order for an additional amount of Rs. 7/- should be sent to cover postal charges.

Candidates in employment should send their applications through proper channel. All appointments will be on two years probation except on leave vacancies and lien posts. Superannuation age is 60 Years. Scheduled Castes and Scheduled Tribes candidates will be given preference, if found suitable.

The University reserves the right to fill up or not to fill up any post advertised and also to call selected candidates for interview. No. T.A./D.A. will be paid for attending interview if called for.

G.S. Gautam
REGISTRAR

MAHARSHI DAYANAND UNIVERSITY
ROHTAK
Advertisement No. 1/89

Applications on prescribed form are invited for the following posts :

Professors : Journalism — (One), History— (One) and Mass Communication.

Field of Specialisation

Professor in History : Ancient Indian History and Archaeology/History of Haryana/Social and Economic History of Modern India.

U.G.C. qualifications and pay-scales. Other allowances and benefits of Contributory Provident Fund admissible as per University rules. Higher start admissible in deserving cases. Knowledge of Hindi essential for all posts. Number of posts is liable to be increased or decreased.

The applications will be screened by the Committee to be appointed by the Vice-Chancellor. The Screening Committee will be competent to screen applicants and classify them on the basis of qualifications and experience and call for interview only the selected candidates. **It shall not be obligatory on part of the University to call all candidates for interview.**

Reservation for Ex-servicemen/B.C./S.C./S.T. candidates as per rules. However, where the candidates under reserved categories are not available, the posts will be filled from amongst the general category's candidates.

Applications are to be submitted on the form prescribed for Class 'A' Officers alongwith attested testimonials and crossed Postal Order(s) for Rs. 10/- drawn in favour of the Finance Officer, M.D. University, Rohtak, payable at the Post Office, Rohtak. Applications (through proper channel from those in employment) complete in all respects should reach the Assistant Registrar (Estt.) (Teaching), M.D. University, Rohtak by 25-1-1989. Incomplete applications or applications received after the expiry of last date shall not be entertained. The application forms can be had from the Press Manager, M.D. University, Rohtak on payment of Rs. 2/- at the counter and Rs. 3/- by ordinary post.

REGISTRAR

ASSAM AGRICULTURAL UNIVERSITY

JORHAT

Advertisement No. 16/88

Applications are invited in prescribed application form for the post of Registrar in Assam Agricultural University, Jorhat in the scale of pay of Rs. 1500-60-1800- 100 - 2000 - 125/2-2500/- (Pre-revised) plus other allowances as admissible under the University rules.

Essential Qualifications : (i) Bachelor's degree in any field of study followed by Master's degree (ii) Doctorate degree in any field of study. (iii) At least 15 (fifteen) years of service experience in teaching/research/extension/Academic Administration, after obtaining the Master degree or at least 10 years service experience in teaching cadre after obtaining Master's degree out of which 5 years of service experience in the rank of Associate Professor or equivalent posts. (iv) Evidence of initiative and capacity to plan, organise and supervise the working of the Agril. University system. The candidates must possess the above qualifications on or before the last date fixed for receiving applications.

Desirable : (i) Qualities of leadership and ability to plan, Co-ordinate teaching and/or research and/or extension education programmes ; (ii) Good Knowledge of trimester/semester system and internal evaluation ; (iii) Familiarity with office procedures and establishment matters related to general administration.

Note : (i) Doctorate degree holders without Master degree are also eligible in case of the inservice candidates of Assam Agril. University only; (ii) Period spent on higher studies leading to Ph.D. not exceeding four years in case of an inservice candidate of Assam Agril. University on study leave will be considered towards calculating total requirement of service experience : (iii) Persons appointed shall be on probation for a period of two years.

The prescribed application form may be had by sending self-addressed 90 paise stamp envelope of the size 23 x 10 cm. from the undersigned. Application complete in all respects together with an application fee of Rs. 10.00 (Rs. 5.00 in the case of ST/SC candidates) by Indian Postal Orders drawn in favour of the Deputy Registrar (Personnel) Assam Agril. University, Jorhat should reach the undersigned by **25th January, 1989.** The applications received after expiry of the last date shall not be entertained. The candidates will be required to appear for interview at their own costs as and when called for. The candidates already in the service should apply through proper channel.

The candidates who applied for the post of Registrar, in AAU, Jorhat in response to advertisement No. 11/88 need not apply again. They may however furnish additional biodata/information, if any, in support of their candidature in terms of the above requirements.

K.N. Chutiya
DEPUTY REGISTRAR
(PERSONNEL)

INDIAN INSTITUTE OF TECHNOLOGY

BOMBAY

P.O. IIT POWAI,
BOMBAY-400 076

Advertisement No. C-260/88

Applications are invited for the permanent post of Assistant Workshop Superintendent in Mechanical Engineering Department of this Institute in the prescribed form obtainable free of charge from the Registrar, Indian Institute of Technology, Powai, Bombay-400 076 on request accompanied by a self-addressed envelope (25 cm x 10cm). Persons employed in Government/Semi-Government Organizations or Educational Institutions should apply through proper channel. The post carries allowances such as DA, CCA, HRA, etc. as per rules of the Institute which at present correspond to those admissible to the Central Government Employees stationed at Bombay. Depending on qualifications and experience, a higher salary may be offered. Completed applications should reach the Registrar, IIT Powai, Bombay-400 076 **on or before 30th January, 1989.**

The post is reserved for the candidates belonging to SC/ST communities. However, if no SC/ST candidate is found suitable, the post may be filled by recruiting a general candidate.

Candidates called for interview will be paid first class railway fare from the place of their residence to the Institute and back by the shortest route. The requisite qualifications, experience etc. are given below :

Assistant Workshop Superintendent (One Post)

Scale of Pay : Rs. 700-40-1100-50-1600 (likely to be revised).

(The total emoluments on the minimum of the scale is Rs. 2855/- per month including H.R.A.)

Qualifications & Experience

A Bachelor's degree in Mechanical Engineering with 5 to 7 years of experience, preferably in Industry, Workshop etc.

Job Description

Assistant Workshop Superintendent is required to conduct classes related to Workshop practices, UG/PG Workshop training, Management of different sections of the Workshop/Personnel, Operation and Maintenance of equipments, Procurement of Materials etc.

Age Limit : Not exceeding 35 years.

REGISTRAR

UNIVERSITY OF DELHI

DELHI-110007

No. Estab. IV/118/88 Delhi, the 14th December, 1988

Applications in the prescribed form are invited for the following posts :

Department	Post P	Post R	Post L	Post RA	Post AS	Special/Desirable Qualifications (if any)
Modern Indian Languages	—	1 (Tamil)	1 (Kannad-temp. upto 12.1.90)	—	—	(For R) Modern Tamil Literature (For L) Some experience or training in Language teaching.
Philosophy	—	3	—	—	—	— —
Punjabi	—	1	—	—	—	— —
Sanskrit	—	—	1 (Temp. upto 7.8.90)	—	—	— —
Anthropology	—	1	—	—	—	Any branch of Physical Anthropology including Bio-Statistics.
Botany	—	—	1	—	—	— —
Geology	—	2	—	—	—	Geophysics, Petrology (igneous and Metamorphic), Hydrogeology, Engineering Geology, Georesources, Geothermics.
Zoology	—	—	—	1	—	Cell Biology; Endocrinology; Entomology; Fish Biology.
Chinese & Japanese Studies	—	—	1 (Chinese language)	—	—	1. Familiarity with modern and audio-visual methods of teaching Chinese language; 2. Study of Chinese language for atleast one year in a University in China.
	—	—	1 (Japanese Studies)	—	—	1. Specialization in Modern Japanese History; 2. Ability to use Primary sources in Jap. language.
	—	—	—	1 (Chinese St.)	—	1. M. Phil. in Chinese Studies; 2. Knowledge of Chinese language
	—	—	—	1 (Japanese St.)	—	1. At least two years Research Experience in Japanese Studies; 2. Knowledge of Japanese language (two year Diploma in Japanese language in the University of Delhi or an equivalent course).
Economics	—	3	1 (Temp. upto 31.12.89)	1	—	— —
Sociology	1	—	1	—	—	(For L) (a) Sociology of Development including Agrarian Structure and Sociology of Movements; (b) Sociology of Science, Technology & Medicine; (c) Population & Migration Studies & Quantitative Methods; (d) Sociology of Cognition, Knowledge & education (e) Historical Sociology & Comparative Ethnography.
Operational Research	—	—	1	—	—	Knowledge of Computer Programming.
Music	—	—	1 (in Dhrupad)	—	—	In Hindustani Music—Knowledge of Sanskrit.
Centre for Professional Development in Higher Education	—	—	—	—	1	**Essential** (a) A Doctorate Degree or published research work of High standard; (b) Good academic record with atleast second class Master's Degree; (c) Adequate experience of Organising Training Programmes. **Desirable** (a) Interest in inter-disciplinary academic work; (b) Training in and experience of Research Methodology.

P — Professor —Scale of Pay Rs. 4500-150-5700-200-7300

R = Reader — Scale of Pay Rs. 3700-125-4950-150-5700

L AS = Lecturer/Academic Secretary* —Scale of Pay Rs. 2200-75-2800-100-4000.

RA = Research Associate—Scale of Pay

(a) Rs. 2200-100-2700)
(b) Rs. 2700-100-3200) On the recommendation of the
(c) Rs. 3200-100-3700) mendation of the
(d) Rs. 3700-125-4325) Selection Committee

St=Studies (*in Lecturer's Scale)

All posts other than Research Associate carry DA, CCA and HRA etc., as admissible under the rules in force in the University from time to time.

All communications in this respect should be addressed to the "Registrar, University of Delhi, Delhi-110007". **The last date for receipt of applications is 31.1.1989.**

DETAILS REGARDING PRESCRIBED QUALIFICATIONS, ETC.

ESSENTIAL QUALIFICATIONS FOR :

Professorship : An eminent Scholar with published work of high quality actively engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

Readership : Good academic record with at least second class Master's degree in a relevant subject with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research, or (ii) innovation in teaching methods or (iii) production of teaching materials. 5 years' experience of teaching of under graduate/post-graduate classes and/or post-doctoral research work with evidence of published work.

Note : Second class would mean at least 50% marks in subject or equivalent grade.

Lecturership : (Other than those in Chinese and Japanese Studies and Music)

(a) A Doctorate degree or research work of an equally high standard; and

(b) Good academic record with at least second class (C in the seven point scale) Master's degree in a relevant subject from an Indian University or an equivalent degree from a foreign University.

Having regard to the need for developing inter-disciplinary programmes, the degree in (a) and (b) above may be in relevant subjects

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax the requirement of at least second class in Master's degree examination' in terms of level achieved at the said examination as prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a good academic record (weightage being given to M.Phil or equivalent degree or research work of quality) may be appointed.

Lecturership in Chinese and Japanese Studies

(a) A Doctor's degree or research work of an equally high standard; and

(b) Good academic record with at least second class (C in seven point scale) Master's degree or M.Phil degree from an Indian University or an equivalent degree from a foreign University.

Having regard to the need for developing interdisciplinary programmes, the degree in (a) and (b) above may be in relevant subjects.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (a) and (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a good academic record (weightage being given to M.Phil. or equivalent degree or research work of quality) may be appointed.

EXPLANATION :

1. For determining 'good academic record' the following criteria shall be adopted :—
   (i) A candidate holding a Ph.D./M.Phil. degree should possess at least a second class Master's degree; or
   (ii) A candidate without a Ph D./M.Phil. degree should possess a High second class Master's degree and second class in the Bachelor's degree; or
   (iii) A candidate not posessing Ph D./M.Phil. degree but possessing second class Master's degree should have obtained first class in the Bachelor's degree.
2. Persons having secured at least 55% or more marks shall be deemed to have passed the Examination in the High Second class.

Lecturership in Music

(a) Good academic record with at least second class (C in the seven point scale) Master's degree in a relevant subject or an equivalent degree or diploma recognised by the University; and

(b) Two years research or professional experience or evidence of creative work and achievement in the field of specialization or a combined research and professional experience of three years in the field as an artist of outstanding talent.

OR

A traditional or a professional artist with highly commendable professional achievement in the subject concerned.

Research Associate :

Consistently good academic record with first or high second class (B+) Master's degree or an equivalent degree of a foreign University in the subject concerned.

Note : Initial appointment will be for a tenure period of 3 years extendable by another 2 years only. In no case the tenure will extend beyond 5 years in all.

Applications (separate for each post) accompanied by attested copies of Degrees, other certificates, marksheets, published research articles etc. should be addressed to the Registrar, University of Delhi, Delhi-110007.

The candidates will have to produce the original documents relating to their age, qualifications, experience, etc. at the time of interview.

NOTE : 1 It will be open to the University to consider names of suitable candidates, who may not have applied. Relaxation of any of the qualifications may be made in exceptional cases, in respect of all the posts on the recommendations of the Selection Committee.

2. Canvassing in any form by or on behalf of the candidate will disqualify.
3. Candidates from outside Delhi when called for interview will be paid to and fro single second class rail fare.
4. The University reserves the right not to fill up any of the vacancies advertised if the circumstances so warrant.

Madan Mohan
REGISTRAR

Agricultural Scientists Recruitment Board
Krishi Anusandhan Bhawan

PUSA, NEW DELHI-110012

Advertisement No. 1/89

Applications are invited for the following posts in Agricultural Sciences and other fields under the different Research Institutes and at the Headquarters of the INDIAN COUNCIL OF AGRICULTURAL RESEARCH

Indian Council of Agricultural Research Headquarters, New Delhi

1. **Deputy Director-General (Education, Centre-State Relations) S-6 (One post) Rs. 2500-3000 (Pre-revised), Age : Below 55 years.**

Qualifications Essential : (i) Doctorate in any branch of Agricultural Sciences. (ii) At least 15 years' research/teaching experience at post-graduate level, of which 10 years should be at least at S-3 level or an equivalent pay scale including 6 years as Dean/Director/Head of Division/Project Director/Joint Director/ADG/Head of Deptt. or an equivalent post in a University in the Professor's scale (The experience in research/teaching is to be reckoned from the date the candidate has completed his Master's degree and will include the period, not exceeding 3 years, spent to obtain Doctorate Degree), (iii) A record of productive research as evidenced by published work.

Central Avian Research Institute, Izatnagar

2. **Director S-5 (One post) Rs. 2000-2500 (Pre-revised), Age : Below 55 years.**

Qualifications Essential : (i) Doctorate degree in any discipline of Veterinary/Animal Sciences preferably with specialisation in Poultry Science. (ii) At least 12 years' Research/Teaching experience at post-graduate level, of which 7 years experience should be at least at S-3 level or equivalent pay including at least 3 years as Director/Head of Division/Research Project Coordinator/Joint Director/ADG/Head of the Deptt. or an equivalent post in a University in the Professor's scale. (The experience in research/teaching is to be reckoned from the date the candidate has completed his Master's degree and will include the period, not exceeding 3 years, spent to obtain Doctorate Degree), (iii) As in Item No. 1 above.

Indian Veterinary Research Institute, Izatnagar.

3. **Joint Director (ETM) S-5 (One post) Rs. 2000-2500 (Pre-revised), Age : Below 55 years.**

Qualifications Essential : (i) Doctorate in Veterinary Physiology/Animal Reproduction with basic degree in Veterinary Science. (ii) At least 12 years' Research/Teaching experience at post-graduate level of which 7 years experience should be at least at S-3 level or equivalent pay including at least 3 years as Director/Head of Division/Research Project Coordinator/Joint Director/ADG/Head of Deptt. or an equivalent post in a University in the professor's scale. (The experience in research/teaching is to be reckoned from the date the candidate has completed his Master's Degree and will include the period not exceeding three years spent to obtain Doctorate Degree). Out of the above experience, 1-2 years experience should be in the field of Embryo Transfer Technology exclusively as Project Leader. (iii) As in Item No. 1 above.

Indian Council of Agricultural Research Headquarters, New Delhi.

4. **Zonal Coordinator Zone-VI (Lab to Land Programme) S-4 (one post), Rs. 1800-2250 (Pre-revised), Age : Below 50 years (For Gujarat Agricultural University, Ahmedabad).**

Qualifications Essential : (i) Doctorate in any branch of Agricultural Sciences. (ii) At least 10 years research/training experience at post-graduate level of which at least 5 years experience should be at S-3 level or equivalent pay (the experience in research/training is to be reckoned from the date the candidate has completed his Master's Degree and will include period not exceeding 3 years spent to obtain doctorate degree). (iii) Managerial experience of at least 3 years as Head of the Division/Research Project Coordinator/Head of Regional Station/Joint Director/Research Project Leader in S-3 level or Head of Deptt. in a University in the grade of Professor/Associate Professor in the field of Transfer of Technology/Agricultural Extension.

5. **Assistant Director-General (Animal Health) S-4 (One post), Rs. 1800-2250 (Pre-revised), Age : Below 50 years.**

Qualifications Essential (i) Doctorate in any branch of Animal Health such as Veterinary Pathology, Bacteriology, Virology, Parasitology, Epidemiology, Public Health, Medicine or Surgery. (ii) As in Item No. 4 above, (iii) Managerial experience of at least 3 years as Head of Division/Research Project Coordinator/Head of Regional Station/Joint Director/Research Project Leader in S-3 level or Head of Deptt. in a University in the grade of Professor/Associate Professor.

National Bureau of Plant Genetic Resources, New Delhi.

6. **Joint Director (Tissue Culture Repository) S-4 (One post), Rs. 1800-2250 (Pre-revised), Age : Below 50 years.**

Qualifications Essential : (i) Doctorate in Plant Breeding/Genetics/Agricultural Botany. (ii) As in item No. 4 above. (iii) As in Item No. 5 above.

Sugarcane Breeding Institute Coimbatore.

7. **Scientist S-3 (Plant Breeding) (Two posts), Rs. 1500-2000 (Pre-revised), Age : Below 50 years. One**

post is reserved for S.C. candidates and one post is unreserved.

Qualifications Essential : (i) Doctorate in Botany/Agricultural Botany with specialisation in Plant Breeding and Genetics (relaxable to Master's Degree or an equivalent qualification in case of candidates with exceptionally distinguished record of productive research and responsible leadership in the relevant field). (ii) At least 7 years' research/teaching experience at least at Bachelor's degree level for candidates possessing a Doctorate Degree (excluding the period spent for obtaining the Doctorate Degree) and 10 years for those having a Master's Degree or an equivalent qualification. Out of the 7/10 years, at least 2 years experience should be at S-2 or equivalent pay scale.

National Research Centre for Agro-Forestry, Jhansi.

8. Scientist S-3 (Silviculture) (Forestry) (One post), Rs. 1500-2000 (Pre-revised), Age : Below 50 years.

Qualifications Essential : (i) Doctorate in Plant Science/Forestry (relaxable to Master's degree or an equivalent qualification in case of candidates with exceptionally distinguished record of productive research and responsible leadership in the relevant field. (ii) At least 7 years research/teaching experience at least at Bachelor's degree level in any aspect of silviculture/silvi-pasture/Agroforestry system for candidates possessing a doctorate degree (excluding the period spent for obtaining the Doctorate degree) and 10 years for those having a Master's degree or equivalent qualification Out of the 7/10 years at least 2 years experience should be at S-2 or equivalent pay level.

9. Scientist S-3 (Agronomy) (One post), Rs. 1500-2000 (Pre-revised), Age : Below 50 years.

Qualifications Essential : (i) Doctorate in Agronomy (relaxable to Master's degree or an equivalent qualification in case of candidates with exceptionally distinguished record of productive research and responsible leadership in the relevant field). (ii) As in Item No. 7 above.

Directorate of Oilseeds Research, Hyderabad.

10. Scientist S-3 (Project Coordinator (Linseeds) (One post), Rs. 1500-2000 (Pre-revised), Age : Below 50 years (For Chandra Sekhar Azad University of Agri. & Technology, Kanpur).

Qualifications Essential : (i) Doctorate in any branch of Agril. Sciences (relaxable to Master's Degree or an equivalent qualification in the case of candidates with exceptionally distinguished record of productive research and responsible leadership in the relevant field). (ii) As in Item No. 7 above.

Central Sheep & Wool Research Institute, Avikanagar.

11. Scientist S-2 (Animal Physiology) (One post), Rs. 1100-1600 (Pre-revised), Age : Below 45 years.

Qualifications Essential : (i) Doctorate in Veterinary/Animal Physiology (relaxable to Master's degree or an equivalent qualification in case of candidates with exceptionally distinguished record of productive research). (ii) At least 5 years research/teaching experience at least at Bachelor's degree level (excluding the period spent for obtaining the Doctorate Degree) for candidates possessing a Doctorate degree and 8 years for those having Master's Degree or an equivalent qualification.

National Academy of Agricultural Research Management, Hyderabad.

12. Editor (T-7) (One post), Rs. 1100-1600 (Pre-revised), Age : Below 45 years.

Qualifications Essential : (i) Master's degree in Agriculture, Animal Sciences, Fisheries or Sciences basic to them or Master's degree in Journalism Communication. (ii) Three years experience in an Organisation/Public Houses of Standing on reporting/editing of scientific materials. This is relaxable to Bachelor's degree holder of a recognised University in the subject relevant to the job requirement provided that the candidate has at least 11 years experience of science writing and science journalism in the concerned language as evident through his publications.

Central Institute of Agricultural Engineering, Bhopal.

13. Agricultural Extension Engineer (T-7) (One post), Rs. 1600-1600 (Pre-revised), Age: Below 45 years. Reserved for S C. candidate.

Qualifications Essential : (i) Bachelor's Degree in Agricultural Engineering. (ii) At least 5 years research/teaching/extension/Manufacturing/Training experience in Farm Mchinery and Power/Post Harvest Technology/Energy in Agriculture.

Indian Veterinary Research Institute, Izatnagar.

14. Engineer Incharge (T-7) (One post), Rs. 1100-1600 (Pre-revised), Age : Below 45 years.

Qualifications Essential : (i) Three years Diploma/Bachelor's Degree in relevant field. (In fields where the duration of Diploma Course available in the country is only two years, the minimum qualification prescribed will be two years Diploma instead of three years Diploma). (ii) At least 5 years experience.

Closing Date for Receipt of Applications in Agricultural Scientist Recruitment Board Office is 21st Feb, 1989.

(For candidates from abroad and in the Andaman and Nicobar Islands, Lakshadweep, Minicoy and Amindivi Islands, State/Union Territories in the North Eastern Region, Ladakh Division of J&K State, Sikkim and Pungi Sub-division of Chamba, Lahul & Spiti Districts of Himachal Pradesh, last date will be 8th March, 1989.

General Instructions

1. For application forms, please write to the **Secretary, Agricultural Scientists Recruitment Board, Krishi Anusandhan Bhavan, Pusa, New Delhi-110 012.** Request for forms must specify Advt. No. 1/89, name of the Post and Item number and should be accompanied by a self addressed unstamped envelope (23x10 cms size).
2. Separate application with separate fee is required for each post.

3. Application forms complete in all respect should reach office of the ASRB together with the application fee of Rs. 8/- (No fee for SC/ST candidates) in the form of Crossed Indian Postal Order drawn in favour of the Secretary, Indian Council of Agricultural Research by the closing date. Applications received after the closing date will not be entertained. In Case a Candidate Anticipates Delay in Forwarding of his Application Through Proper Channel, he must send an Advance Copy of the Application alongwith the fee which must Reach this office on or before the Closing Date.

4. Candidates abroad may apply on plain paper and send their applications together with an International Postal Order/Bank Draft covering the application fee drawn in favour of the Secretary, Indian Council of Agricultural Research, so as to reach the office of the ASRB by the closing date. In countries where regular commercial channels, are not available the candidates can deposit the application fee in local currency with the Indian Missions/Posts abroad who in turn will issue on R.B.I. draft in favour of Secretary, ICAR, New Delhi.

5. Only the candidates belonging to SC/ST would be considered against the respective reserved posts. As such, General candidates Need not Apply against the reserved posts.

6. Crucial date for determining the age limit of candidates for each post will be the closing date for receipt of applications from candidates in India. There will be no maximum age limit for ICAR Employees. Relaxation in age is allowed to SC/ST persons to the extent permissible under the rules.

7. The prescribed Essential Qualifications are minimum and possessing of same does not entitle candidates to be called for interview. Where the number of applicants is large, the Board may restrict the number of candidates for Interview to a reasonable limit on the basis of qualifications and experience higher than the minimum prescribed in the Advt.

8. T.A. Contribution will be admissible for those called for Interview as per ICAR Rules.

9. If required, candidates must appear for personal interview.

10. Higher initial pay may be recommended by the ASRB for specially qualified and experienced candidates for all the posts.

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UTKAL UNIVERSITY
VANI VIHAR
BHUBANESWAR-751004

No. Estt.I/886-C/Vol. IV/A-37789/88

Dated : 24-12-88

Applications in Seven Copies are invited in the prescribed forms alongwith attested copies of certificates and marklists of all examinations passed for the following posts (with specializations indicated, if any) for the University so as to reach the Registrar, Utkal University, Vani Vihar, Bhubaneswar-751 004 on or before 27-1-1989 from inland candidates and 13-2-1989 from candidates abroad.

2. Prescribed application forms can be had from the University Information Counter on production of a Bank receipt from S.B.I., Vani Vihar, or a Crossed Bank Draft payable at S.B.I. Vani Vihar or a Crossed Indian Postal Order worth Rs. 30/- (Rupees thirty only) drawn in favour of the Finance Officer, Utkal University, Vani Vihar, Bhubaneswar-4 in person or by post on receipt of a Crossed Bank Draft/Crossed Indian Postal Order worth Rs. 30/- (Rupees thirty only) and a self-addressed envelope (23 cm x 10 cm) size duly affixed with postage stamps worth Rs. 8.50 (Rupees eight and paise fifty only) superscribed thereon with the words "Application Form for Teaching Posts under Utkal University.

3. The details regarding scales of pay and other allowances, age of superannuation as well as educational qualifications for the posts and other conditions can be had from the University counter alongwith the prescribed forms.

4. Posts (with specialization, if any indicated in the bracket) :

Sl. No. 1 Professor

(a) English-One
(b) Geology-One (Leave vacancy)
(c) Library and Information Science —One

Sl. No. 2 Reader

(a) Analytical and Applied Economics-One (Mathl. Economics)
(b) Chemistry-One (Leave vacancy-Analytical chemistry and Instrumentation/Physical & Nuclear Chemistry)
(c) Commerce - Two (One lien vacancy)
(d) Geology-One (Leave vacancy)
(e) LL.M.-4 (Three Leave vacancies)
(f) Physics-One (Electronics)
(g) Psychology-One (Leave vacancy)
(h) Academic staff college-One (Temporary).

Sr. No. 3 Lecturer

(a) A. & A. Economics-One (reserved for S.T.) and Two (Leave vacancies with Mathematical Economics)
(b) Botany-One reserved for S.T. with Biosystematics/Cyto - taxonomy)
(c) Commerce-3 (One reserved for S.T. and one S C.)
(d) Geology (U.G.)-One (Reserved for S.T.) and one (leave vacancy);
(e) Geography-One (Leave vacancy)
(f) Oriya-One (Reserved for S T.)
(g) Psychology-One (Leave vacancy)
(h) Statistics-One (Leave vacancy)
(i) Zoology - One (Developmental Biology) Temporary.
(j) D.C C.-One Commerce (Reserved for S.T.) One in Oriya & One in Economics reserved for S.C.
(k) Law College-One (Reserved for S T) part-time 5
(l) Academic Staff College - One (temporary)
(m) Political Science-1 (lien vacancy) Theory and problem of international politics and U.N. and foreign policies including Indian Foreign policy).

REGISTRAR

HARYANA AGRICULTURAL UNIVERSITY

ADVERTISEMENT NO. 1/89

Applications are invited for following posts on the prescribed application form obtainable from Assistant Registrar (Recruitment), Haryana Agricultural University, Hisar by sending self-addressed unstamped envelope size 23 x 10 cm. alongwith Indian Postal Order of Rs. 2/- in the name of Assistant Registrar (General) or on payment of Re. 1/- in cash at the counter. Candidates already in service must apply through proper channel. Applications complete in all respects accompanied by a fee of Rs. 20/- for posts at Sr. No. 1 to 24 & 44 Rs. 15/- for posts at Sr. No. 25 to 43, Rs. 10/- for posts at Sr. No. 45 to 52 and Rs. 5/- for posts at Sr. No. 53 to 54 in the form of Indian Postal Order in the name of Assistant Registrar (General), Haryana Agricultural University, Hisar, payable at HAU Post Office, Hisar should reach the Registrar by **31-1-89** (15-2-89 for candidates residing abroad). Incomplete applications and those received late will not be considered. Benefit of Contributory Provident Fund and Leave etc. admissible as per University Rules. The applicants must possess prescribed qualifications and experience on the last date for receipt of applications. However, those who have submitted their thesis (Master's/Doctorate level) by the last date of receipt of applications are also eligible to apply. The date of submission of thesis must be supported by a certificate duly signed by the concerned authority of the institution. They will be considered by the selection committee only if they produce the completion certificate of Master's/Doctorate degree at the time of interview. The envelope containing application must be superscribed as "APPLICATION FOR THE POST——"

1. **Professor of Botany (One)** : (i) At least second class B.Sc. (Agri.)/B.Sc. with Botany, (ii) At least second class M.Sc. (Agri.) in Botany/M.Sc. in Botany or Plant Physiology. (iii) Ph.D. in Botany/Ph.D. (Agri.) with specialisation in Plant Physiology. (iv) At least 10 years experience of teaching/research/extension in Botany/Plant Physiology out of which atleast 5 years should be as Associate Professor/equivalent rank.

2. **Regional Director, Regional Research Centre, Uchani (One)** : (i) At least second class B.Sc. (Agri.) or B.Sc. (ii) At least second class M.Sc. in Plant Breeding/ Genetics/Agronomy/Entomology/Plant Pathology/Biochemistry/Soil Science. (iii) Ph.D. in Plant Breeding/ Genetics /Agronomy/Entomology/Plant Pathology/Biochemistry / Soil Science. (iv) At least ten years experience of research in Plant Breeding/Genetics/ Agronomy/Entomology / Plant Pathology/Biochemistry/Soil Science, preferably on Sugarcane, out of which at least 5 years should be as Assoc. Prof./ equivalent rank.

3. **Principal, College of Agriculture, Kaul (One) : Essential** ; (i) Second class graduate followed by second class Master's degree in Agriculture or Basic Sciences. (ii) Ph.D. in any field of Agriculture/ Basic Sciences. (iii) Ten years experience in teaching or research or extension out of which 5 years should be as Associate Professor or equivalent.

Desirable : Administrative experience and ability to organise and coordinate work in a department/college and interest in co-curricular activities and sports.

4. **Professor of Computer Science (One)** : (i) Master's degree in Computer Science or Computer applications. (ii) Ten years experience in Computer Science especially Computer Programming including 5 years as Associate Professor's level.

Note : Qualifications including experience relaxable for candidates found otherwise outstanding.

5. **Professor of Family Resource Management (One) : Essential** : (i) 2nd class B.Sc. (Home Science). (ii) Second class M. Sc. in Home Management/ Family Resource Management; (iii) Ph.D. in Home Science/Family Resource Management; (iv) Fifteen years experience of teaching/research/extension.

Desirable : (i) Extension experience and experience in designing rural field work ; (ii) Capacity for organization as Head of Section or Dept. of teaching or research institute administrative experience.

6. **Senior Scientist (Seed Technology)** : (i) Second class B.Sc./B.Sc. (Agri.)/Bachelor's degree in Agril Engg. (ii) Second class Master's degree in Seed Technology/ Genetics/Plant Breeding / Plant Physiology / Plant Pathology / Agronomy / Botany with specialisation in Plant Physiology/ Agril. Economics/Agril. Engineering/ Entomology. (iii) Ph.D. in Seed Technology/Genetics/Plant Breeding / Plant Physiology/Plant Pathology/Agronomy/ Botany with specialisation in Plant Physiology/ Agril. Economics / Agril. Engineering / Entomology. (iv) Ten years experience in any branch of Seed Technology out of which atleast five years should be as Associate Professor or equivalent rank.

7. **Senior Scientist (Seed Production & Certification)** : (i) Second class Bachelor's degree in Agriculture. (ii) Second class Master's degree in Genetics/Plant Breeding (iii) Ph.D. in Genetics / Plant Breeding. (iv) Ten years experience in Seed Production and Certification out of which at least five years should be as Associate Professor or equivalent rank.

8. **Professor of Forestry (One)** : **Essential** : (i) Second class B.Sc./B.Sc. (Agri)/B. Tech./B.E.; (ii) Second class A.I.F.C. (Associate of Indian Forest College/Master's degree in Forestry or equivalent; (iii) Ph. D. in Forestry; (iv) Ten years experience in Forestry out of which 5 years should be in the rank of Assoc. Professor or equivalent.

Desirable : Experience of post-graduate teaching and guiding research in Forestry.

9. **Professor of Agricultural Meteorology (One)** : (i) Second class B Sc / B Sc. (Agri). (ii) Second class M.Sc. in Agricultural Meteorology or Meteorology/Agril. Physics/Physics with training or experience in Agricultural Meteorology. (iii) Ph.D. in Agricultural Meteorology or Meteorology with specialization in Agricultural Meteorology. (iv) Ten years experience of teaching/research/extension in agricultural Meteorology out of which 5 years should be in the rank of Associate Professor or equivalent.

10. **Plant Breeder (One)** : (Headquarters at Hyderabad) : (i) Second class B.Sc. (Agri.)/B.Sc. (Hons.) Agri. (ii) Second class Master's level in Plant Breeding/Genetics. (iii) Ph.D. in Plant Breeding / Genetics. (iv) Five years

experience of teaching/research/extension.

11. **Associate Professor (Animal Feed Technology) : One : Essential :** (i) Second class B.Sc. (Hons.) Animal Science/B.V. Sc. & A.H./B.V A Sc./B.Sc. (Agri)/B.Sc. (Dairy). (ii) Second class M.Sc. in Animal Nutrition/Feed Technology. (iii) Ph.D. in Animal Nutrition/ Feed Technology. (iv) Five years experience in Teaching/Research/Extension in the field of Animal Feed Technology/Nutrition.

Desirable : (i) Training in Animal Feed Technology. (ii) Experience in procurement and processing of Feeds for various categories of livestock and poultry.

12. **Associate Professor (Clothing & Textiles)** One : (i) Second class B.Sc. (Home Science). (ii) Second class Master's level in Clothing and Textiles. (iii) Ph.D. in Clothing and Textiles. (iv) Five years experience of teaching/ research/extension in the field of Clothing and Textiles.

13. **Scientist (Microbiology)—One :** (i) Second class B.Sc. or B.Sc. (Agri). (ii) Second class M.Sc. in Microbiology. (iii) Ph.D. in Microbiology. (iv) Five years experience of teaching/research in Microbiology.

14. **Scientist (Forestry) — One : Essential** (i) Second class B.Sc./B.Sc. (Agri.)/B. Tech./B.E.; (ii) Second class A.I.F.C. (Associate of Indian Forest College)/Master's degree in Forestry or equivalent; (iii) Ph.D. in Forestry; (iv) Five years experience in Forestry.

Desirable : Training experience in Forestry Education/Research.

15. **Scientist (Seed Testing)—One :** (i) Second class Bachelor's degree in Agriculture. (ii) Second class Master's degree in Seed Technology/Genetics/ Plant Breeding/Plant Physiology/Plant Pathology/Agronomy. (iii) Ph.D. in Seed Technology/Genetics/Plant Breeding/Plant Physiology/Plant Pathology/ Agronomy. (iv) Five years experience in Seed Testing.

16. **Seed Physiologist—One** : (i) Second class Bachelor's degree in Science/Agriculture. (ii) Second class M.Sc. in Plant Physiology with specialisation in Seed Physiology/M.Sc. in Botany with specialisation in Seed Physiology. (iii) Ph.D. in Physiology with specialisation in Seed Physiology/ Botany with specialisation in Seed Physiology. (iv) Five years experience in Seed Physiology.

17. **Sorghum Breeder—(One)** : (i) Second class at Bachelor's level. (ii) Second class at Master's level in the Plant Breeding. (iii) Ph.D. in the Plant Breeding. (iv) Five years experience of teaching/research/extension on Forage Sorghum.

18. **Director Farms (Inputs and Marketing)—One : Essential :** (i) At least first division in B Sc. (Agri.) from a recognised University. (ii) At least 10 years experience of managing a big commercial experimental farm, particularly with respect to procurement and supply of inputs and marketing of farm produce. (iii) Good knowledge of farm machinery and mechanised cultivation, including processing and marketing of farm produce.

Desirable : Second class M.Sc. (Agri).

19. **Director Farms (Production) Essential :** (i) At least first division B Sc. (Agri.) from a recognised University. (ii) At least 10 years experience of managing a big commercial/experimental farm. (iii) Good knowledge of farm machinery and mechanised cultivation.

Desirable : Second class M.Sc. (Agri).

20. **Extension Specialist (Home Science) : Essential :** (i) Second class B.Sc., Home Science. (ii) Second class M.Sc. in any field of Home Science. (iii) Ph.D. in any field of Home Science. (iv) Five years experience of extension/ teaching/research in Home Science.

Desirable : Experience in organising women's programme in rural areas.

21. **Agronomist (Weed Science)— One** : (i) Second class B.Sc. (Agri); (ii) Second class M.Sc in Agronomy; (iii) Ph.D. in Agronomy; (iv) Five years experience of research/teaching/extension in Agronomy.

22. **Associate Professor (Agricultural Process & Food Engineering)— One : Essential** : (i) Second class Bachelor's degree in Agril. Engg.; (ii) First class Master's degree in Agril. Engg. with specialization in Agril. Process and Food Engg. (iii) Five years experience in teaching/research/extension.

Desirable : Ph.D. in Agril. Engg. (Agril. Process Engg./Food Engg.)

23. **Disease Investigation Officer at Bhiwani**—(One) : (i) Second class B.V. Sc./B.V. Sc. & A.H.; (ii) Second class M.V. Sc. in Epidemiology/Pathology/ Bacteriology / Preventive Medicine/ Parasitology; (iii) Ph.D. in Epidemiology/Pathology/Bacteriology/Preventive Medicine/Parasitology; (iv) Five years experience of research/teaching/extension / investigation of livestock and poultry diseases.

24. **Associate Professor (Meat Technology) —One : Essential :** (i) Second class B.V.Sc. & A.H./B.V. Sc./ B.Sc. (Agril.)/B.Sc. (Animal Science). (ii) Second class M.V. Sc./M.Sc. (Animal Science)/M.Sc. (Food Tech.) with specialisation in meat/wool technology; (iii) Ph.D. in meat Tech./Wool Technology; (iv) Five years teaching/research/ extension experience as evidenced by published work in journals of repute.

25. **Assistant Scientist (Rumen Microbiology)** (Upto 31-3-90)—One (i) Second class B Sc./B.Sc. (Agri)/B.V.Sc. & A.H. / B.Sc. Animal Husbandry & Dairy/B.Sc. Animal Sciences; (ii) M.Sc. Microbiology/Zoology/Animal Sciences in first class or with OGPA not less than 3.2/4.00 basis or equivalent in the discipline OR second class M.Sc. Microbiology/Zoology/Animal Sciences followed by Ph.D. in the discipline concerned.

Desirable : Specialization in Rumen Microbiology.

26. **Assistant Dairy Manager—(One Upto 31-3-90) : (i)** Second class B.Sc. Ag. & A H./B.V.Sc. and A.H. B.Sc. Dairying (Dairy Husbandry, B Sc. (Animal Science); (ii) Master's degree in the first class or with an OGPA of not less than 3.2/4.00 in the discipline of Animal Breeding OR second class Master's degree followed by Ph.D. in the discipline of Animal Breeding.

27. **Assistant Scientist (Animal Breeding)**—One (Upto 31-3-90) : (i) Second class B.Sc. Ag. & A H. B.V.Sc. & A.H. B.Sc. Dairying (Dairy Husbandry) B Sc. (Animal Science) (ii)

Master's degree in the first class or with an OGPA of not less than 3.2/4.00 in the discipline of Animal Breeding OR second class Master's degree followed by Ph.D. in the discipline of Animal Breeding.

28. **Junior Phytochemist—(One)** : (i) Second class B.Sc. (ii) Master's degree in the first class or with an OGPA of not less than 3.2/4.00 or equivalent in Organic Chemistry/Biochemistry OR at least second class Master's degree followed by Ph.D. in Organic Chemistry/Biochemistry.

29. **Assistant Professor Physical Education**—(Two—One each in Hockey and Volleyball) : (i) Second class BSH & P.E./B.A.+D.P.E. / B.P.E. (ii) First class Master's degree in Physical Education or second class Master's degree in Physical Education with two years experience in Physical Education/Sports. (iii) Diploma / Certificate in Coaching in the relevant game from any recognised institution.

30. **Assistant Feed Technologist (Animal Nutrition)**—One : (i) Second class B.V Sc. and A.H./B.Sc. (Animal Husbandry and Dairy)/ B.Sc. (Animal Sciences)/B.Sc. (Agri). (ii) First class M.Sc. Nutrition or second class M.Sc. (Animal Nutrition) followed by Ph.D. (Animal Nutrition).

31. **Assistant Scientist (Vety. Public Health and Epid.)**—One (Upto 18-7-93); (i) At least second class B.V.Sc. & A.H. (ii) Master's degree with first class or with an OGPA of not less than 3.2/4.00 or equivalent in the discipline of Vety. Public Health Vety. Microbiology OR second class Master's degree followed by Ph.D. in Vety. Public Health/Vety. Microbiology.

Desirable : Advance training or research experience on Mycoplasma.

32. **Assistant Professor (Alternate Energy Sources)**—One : At least second class Bachelor's degree in Agril. Engg./ Mechanical Engg./Chemical Engg. followed by 1st class Master's degree in Engg. Technology with specialization in alternative energy sources technology.

33. **Assistant Professor (Electronics)**—One : At least second class Bachelor's degree in Electrical Engg./Electronics Engg. followed by a first class Master's degree in Electronics Engg./Electrical Engg. with specialization in power electronics.

34. **Assistant Professor (Mechanical Engineering)**—One : At least second class Bachelor's degree in Mechanical Engg. followed by first class Master's degree in Mechanical Engg. with specialization in thermal Engg./Production Engineering.

35. **Assistant Professor (Soil and Water Engg.)**—One : At least second class Bachelor's degree in Agril. Engg. followed by first class Master's degree in Agril. Engg. with specialisation in Soil and Water Engineering.

36. **Assistant Professor (Civil Engg.)**—One : At least second class Bachelor's degree in Civil Engineering following by first class Master's degree in Civil Engg.

37. **Assistant Professor (Farm Machinery & Power)**—One : At least second class Bachelor's degree in Agril. Engg. followed by first class Master's degree in Agril. Engg. with specialisation in Farm Machinery and Power.

38. **District Extension Specialist (Animal Science)**—Two

39. **District Extension Specialist (Horticulture)**—Two

40. **District Extension Specialist (Farm Management)**—One

41. **Assistant Professor (Physics)**—Two (One each at Hisar and Kaul)

42. **Assistant Professor (Vety. Gynaecology & Obsts.)**—One

43. **Assistant Professor (Animal Feed Technology)**—One

Qualifications for the Posts at Sr. No. 38 to 43 :

(i) At least second class at Bachelor's level i.e. B.Sc. (Agri). B.Sc. Hons. Ag/B.Sc. Animal Science/ B.V. Sc. & A.H., B.V.Sc. & Animal Science/B.Sc. as the case may be.

(ii) Master's degree in the first class or with an OGPA of not less than 3.2/4.00 or equivalent in the discipline mentioned against each post, or atleast second class Master's degree followed by Ph.D. in the discipline concerned.

44. **Principal, Campus School (One) Essential** : (i) At least second class Master's degree (ii) A degree or a post graduate degree/diploma in teaching/ education; (iii) At least 10 years educational experience including atleast 5 years educational administrative experience at the level of Principal/Headmaster of an English medium Public or Sainik School.

Desirable : (i) Should have good command over English and Hindi (ii) Experience in organising games and sports and other co-curricular activities.

45. **School Lecturer (Mathematics)**—One : **Essential** : Master's degree in the subject with degree or a recognised diploma in Education (ii) B.Sc. with Physics; (iii) Experience of teaching Mathematics to Intermediate or higher classes for three years.

Desirable : (i) Teaching experience in CBSE affiliated school; (ii) Active participation in co-curricular activities and ability to organise such activities in the school.

46. **School Teacher (Mathematics) (One)** : **Essential** : (i) B.Sc. with Maths. and Physics; (ii) B.Ed. or a recognised degree in Education; (iii) Three years teaching experience to Middle or Secondary classes in English medium.

Desirable : (i) Teaching experience in CBSE affiliated school; (ii) Active participation in co-curricular activities and ability to organise such activities in the school.

47. **School Teacher (Instrumental Music)**—One : **Essential** : (i) B.A. (Pass) or B.A. (Hons.) with Music from a recognised University; (ii) Degree or Diploma in education; (iii) Three years experience of teaching Music classes in a school.

Note : Preference will be given to those candidates who can play more than one instrument including Sitar, Tabla, Guitar.

Desirable : (i) Teaching experience in CBSE affiliated school; (ii) Active participation in co-curricular activities and ability to organise such activities in the school.

48. **School Teacher (Sanskrit)**—One **Essential** : (i) Honours in Sanskrit and Matriculation in English OR B.A. with Sanskrit as optional subject; (ii) A recognised degree or diploma in Education; (iii) Three years teaching experience in English medium school.

Desirable : (i) Teaching experience in CBSE affiliated school; (ii) Active participation in co-curricular activities and ability to organise such activities in the school.

49. **Architectural Assistant**—(One) **Reserved for Ex-servicemen : Essential :** Degree or equivalent diploma in Architecture from an Institute recognised by the Government OR Intermediate in Architecture with five years experience under a qualified Architect after qualifying OR Diploma in Architectural Assistantship with eight years experience under a qualified Architect after qualifying; OR Diploma in Civil Draftsmanship with nine years experience under a qualified Architect after qualifying.

50. **Stock-Assistant** (Eight—2 reserved for S.C., one each for physically handicapped and E.S.M.) Out of these, 7 posts are upto 31-3-1990 but likely to continue.

(i) Matric or its equivalent; (ii) Must have qualified at least one year training course in Stock Assistant from HAU, Hisar/any other recognised institution in India; (iii) Hindi upto Matric.

Note : For ex-servicemen 15 years active service as Vety dresser in Class I and Class II in Remount Vety. Corps will be considered as equivalent to the above qualifications.

51. **Pharmacist** — (One) Reserved for Ex-serviceman (i) Matric and qualified dispenser; (ii) Three years' experience preferably in a recognised hospital.

52. **Staff Nurse**—(One) **: Must be at** least Matriculate.

Professional : Should be registered as Nurse and Mid-wife with five years experience in a recognised hospital and have operation theatre experience.

53. **Steno-Typist (English) : (Eight—S.C. 3, B.C. 3, Physically handicapped-1 and Ex-servicemen-1) Matriculate 2nd class or atleast Higher Secondary/Pre-University or equivalent examination; (ii) Shorthand speed in English 80 w.p.m. to be transcribed at the speed of 15 w.p.m.**

Desirable : Candidates knowing shorthand in both (English and Hindi) languages will be given preference.

54. **Projectionist (One) : Essential :** (i) Matriculation; (ii) Diploma/certificate/licence in operating 16 mm/35 mm projector; (iii) At least two years' experience of operating 16 mm/35 mm projector.

Desirable : Knowledge of handling other A.V. equipments namely P.A. system, Record-player, Slide-Projector etc. and preparation of soft-ware in Audio-Visual.

For Posts at Sr. No. 1 to 17 and 20 to 43.

Note : 1. One or more qualifications relaxable in case of candidates found otherwise very suitable.

2. Special weightage will be given to extension experience possessed by the candidates for posts in the discipline amenable to extension education.

3. Experience will be counted after a candidate obtains his M.Sc. degree. Further a period of 3 years towards obtaining Ph.D. degree during service shall be excluded from the experience.

Common for All Posts

4. 20% posts of the teachers of the rank of Assistant Prof. or equivalent are reserved for Scheduled Castes in each discipline. In case suitable candidates are not available the posts will be filled up from amongst General category candidates.

Similarly if suitable candidates for the posts at Sr. No. 50 and 53 are not available these will be filled from Backward Class / General category.

5. Benefit of reservation will be admissible only to those S C./B C./E.S.M./P.H. candidates who are domiciles of Haryana State.

6. Number of vacancies mentioned against each post can vary.

7. Indian Postal Orders purchased before 1-1-1989 will not be entertained.

8. Minimum age for entering into University is 18 years and upper age limit is 30 years for the posts at No. 49, 50, 51, 53 and 54. For post at Sr. No. 52, upper age limit is 35 years. The upper age limit for Trained Graduate Teachers is 30 years which can be relaxed upto 5 years by the Vice-Chancellor in case of outstanding candidates.

Pay Scales

Sr. No. of Post	Pay Scales	Total emoluments at the initial of the pay scale (exclusive of House Rent C.C.A.)
1-9	Rs. 4500-150-5700-200-7300	5305/-
10-24	Rs. 3700-125-4700-150-5700	4505/-
25-43	Rs. 2200-75-2800-100-4000	2706/-
44	Rs. 3000-100-3500-125-4500	3690/-
45	Rs. 1640-60-2600-EB-75-2900	2017/-
49	-do- + Rs. 100/- S.P.	2117/-
46 to 48 & 50	Rs. 1400-40-1600-50-2300-EB-60-2600	1722/-
51	Rs. 1350-30-1440-40-1800-EB-50-2200	1661/-
52	Rs. 1200-30-1560-EB-40-2040	1476 -
53	Rs. 950-20-1150-EB-25-1500 plus Rs. 100/- S.P.	1270/-
54	Rs. 950-20-1150-EB-25-1500	1170/-

REGISTRAR

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University News

MONDAY, JANUARY 16, 1989 Rs. 2.50

L to R : Prof. S.K. Khanna, Secretary, UGC, Shri R.K. Trivedi, Governor of Gujarat and Dr. M.N. Desai, Vice-Chance at the 37th Annual Convocation of the Gujarat University. Prof. Khanna delivered the convocation address.

PUNJAB AGRICULTURAL UNIVERSITY
LUDHIANA

MASTER OF BUSINESS ADMINISTRATION

Applications are invited for admission to 19th batch of Master of Business Administration programme for the academic year, 1989-90 which is likely to commence from August, 1989.

Eligibility : Graduate/Post-graduate in Science/Engineering, Agriculture, Agricultural Engineering, Technology, Veterinary and Home Science with at least 60% marks at graduation level.

Candidates appearing for the final year of the Bachelor's/Master's degree examination in 1989 can also apply. In such cases final selection will be provisional subject to fulfilment of above requirements.

Selection Criteria : There are 20 seats and admission will be made on the basis of competitive test/interview. Eligible candidates are required to appear in the written test to be held in the month of February/March, 1989 at Ludhiana and the date of the test will be communicated to the eligible candidates by post.

Financial Aid : Liberal financial assistance is available in the shape of fellowship from a number of Business Houses, State Governments and the University. Arrangements also exist for loan scholarships from Nationalised Banks. The deserving candidates are also eligible for half fee concession as per University Rules.

Applications : The Prospectus alongwith application forms can be obtained from the Registrar by sending Crossed Indian Postal Order(s) for Rs. 7/- by post payable to the Comptroller, Punjab Agricultural University at Post Office, PAU, Ludhiana or Rs. 5/- at counter against cash payment. The envelope containing request for application form or the complete application form should be marked **"Admission to MBA".**

The candidates should also attach attested copies of all certificates from Matric onwards with their applications otherwise weightage of marks will not be given to them.

Last Date for Receipt of Applications : 7-2-1989.

Examination Fee : The applications should be submitted to the Registrar, Punjab Agricultural University, Ludhiana alongwith Bank Draft for Rs. 25/- in favour of the Comptroller, PAU, Ludhiana. **Applications without Examination Fee of Rs. 25/- are liable to be rejected.**

Centre for Written Test : Ludhiana.

REGISTRAR

UNIVERSITY NEWS

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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor :
SUTINDER SINGH

MAKING THE UGC MORE EFFECTIVE

N. C. Varadacharyulu*

The proposed study of the functioning of the UGC by the ASCI, Hyderabad is most welcome indeed; (news item published in the Annual Number of '*University News*', dated 28.11.1988). The necessity for undertaking such a study seems to have arisen from the voiced and unvoiced frustration felt by Vice-Chancellors and Principals alike over the following :

(a) inordinate delay in clearing financial assistance proposals submitted by universities and colleges resulting in 'spill overs' invariably;

(b) lack of reasonably acceptable promptness—say one to one and half months in the least—in responding to the communications addressed to; and above all

(c) long and tedious rail journey involved in reaching Delhi if personal approach is felt expedient in getting the proposals cleared.

(A) Decentralisation

The first step necessary for making the UGC more effective is to establish a centre at a central place like Nagpur or Hyderabad, if not several regional centres as pleaded by a majority of the participants at the 63rd AIU annual meeting. Ideally and practically too it would be better to have two centres besides the present central office. The Delhi office and the two proposed centres would have jurisdiction over the universities and colleges spead over some 8-10 states and union territories each asunder :

Sr. No.	Location	Jurisdiction
1.	Delhi	Delhi, Haryana, Chandigarh, Punjab, Kashmir, U.P., Bihar, West Bengal, Rajasthan and Himachal Pradesh;
2.	Nagpur/Hyderabad	M.P., Gujarat, Maharashtra, Goa, A.P., Karanataka, Kerala, Pondicherry, Tamil Nadu and Orissa;
3.	Guwahati	Assam, Meghalaya, Nagaland, Mizoram, Tripura, Arunachal Pradesh, Manipur and Sikkim.

The above decentralised setup could be headed thus :

**Principal, Yeshwant Mahavidyalaya, Nanded-431 602.*

Sr. No.	Administrative setup
1.	Chairman, Secretary
2.	Vice-Chairman, Additional Secretary
3.	Additional Secretary

(B) Streamlining Sanctions

Universities and colleges are unable to utilise fully financial assistance available and sanctioned to them within the plan period. Spillovers are common, arising mainly from the avoidable procedural delay. Planwise guidelines setting out norms and pattern of assistance are circulated mostly after the first year of the plan period is over. By the time proposals formulated as per the guidelines are submitted, the second year also would come to an end. Sanction orders are received in the middle or towards the end of the third year thus leaving 2½ - 2 years time for utilisation of the grants. At times sanction orders are received in the fourth and even the fifth year. This delay naturally affects the building construction projects. The situation could be remedied by :

(i) circulating the guidelines within six months of the first year of the plan period;

(ii) getting proposals by the end of the first year; and

(iii) granting approval to the proposals by the middle of the second year and in any case not later than the end of the second year.

The above streamlined proposal would give the grantee institutions 3½ - 3 years time to utilise the grants in time.

(C) The Pattern of Assistance

Further, a majority of the colleges are unable to utilise the maximum amount of assistance they are entitled to in view of percentage ceiling : books and journals 20%, equipment 20%, FIP 20% building construction 40%. The above breakup leaves no freedom to the colleges. Their specific needs and priorities are totally ignored. The situation as it is amounts simply to 'take it or leave it'. In the case of colleges having only Arts and Commerce faculties, 20% of the amount earmarked for equipment would obviously lapse since not much equipment is needed as in the case of Science faculty. Similarly, the amount set apart for FIP would lapse if a majority of the teachers hold M. Phil/Ph. D. degrees or are over 45 years of age.

Ideally colleges could be given freedom of fixing their priorities and utilising the amount subject to overall ceiling and general norms governing the sharing basis if any, as per their needs.

(D) Revision of Norms of Assistance

The existing pattern of assistance is largely university-oriented. This needs to be altered in favour of colleges for, as per the statistics based on the UGC report for 1983-84, 86% of UG teaching, 58% of P.G. teaching and 14% of research is being done in the colleges proper. The percentage figures at present would have risen further in favour of the colleges. This being the reality there is no justification for granting crores of rupees to universities and doling out only a few lakhs or thousands of rupees to colleges and yet expect them to perform better.

The practice of treating all the colleges on an equal footing irrespective of their standards, stage of development and the number of faculties attached to them, needs to be replaced with a more functional system, so that equal amount is not sanctioned to all colleges as has happened in the case of SAL (c).

The laudable scheme of providing assistance for development of infrastructure facilities for sports under the NSO programme has almost come to naught for want of adequate funds. The scheme could have been implemented successfully with a little bit of careful planning. For instance, colleges located in the metropolitan areas and having no playground whatsoever worth the name, need not have been considered even for equipment grants since they don't possess the basic requirement. Similarly one or two colleges each from a district could have been selected, to begin with, and full amount they were eligible to, as per norms, could have been sanctioned for development of playfields and purchase of equipment. As it is, no appreciable development can be expected from the token grants of Rs. 25,000/- and Rs. 5,000/- respectively.

(E) Assertive Role

If the UGC is serious about improvement of standards in higher education, it is necessary to shed its unflattering image of a mere fund disbursing agency which unfortunately gets strengthened in view of its powerlessness in enforcing uniform norms throughout the country, atleast in the case of some important matters. Since the UGC recommended pay scales are in force throughout the country, it is but proper and justified too, to have uniform norms, as prescribed by the UGC, governing the following :

(i) Calculation of subjectwise (for U.G. and P.G. levels independently) weekly workload and its distribution amongst the teachers concerned in colleges as well as universities.

(ii) Performance appraisal of teachers and their service conditions.

The uniformity suggested on the above lines would put an end to unseemly confrontation between the universities and the State Govts. concerned on the one hand, and the teachers on the other. Let the UGC assert itself and restore order. □

[illegible] 1989
C.F.T.R.I., MYSORE

INFLIBNET—Information and Library Network

Inter-Agency Working Group Report

The University Grants Commission (UGC) constituted in 1988 a Committee on National Network System for Universities/Libraries to suggest measures to network libraries in the country, so as to share the literature resources towards optimum utilisation and to avoid duplication in holdings to the extent possible. Prof. Yash Pal, Chairman, UGC, has been the Chairman of the Committee. At its first meeting on 22nd April, 1988 the Committee constituted a Working Group to prepare a Project Report within three months for consideration and further action. The terms of reference for the Working Group were as follows :

1. *To review the present scenario of library automation and computerised bibliographic information service in India, taking into account similar services/experiences in some of the developed countries, with a view to propose a mechanism to establish a Network of Libraries in universities, colleges, special libraries and documentation centres in the country;*
2. *To identify the possible areas of cooperation for resource sharing and to minimise duplication in acquisition of books, serials, etc;*
3. *To propose a mechanism for using such a network for scientific communication among the research community in the country and abroad;*
4. *To specify the objectives of the Network at National, Regional and Unit level;*
5. *To suggest a suitable architecture for Network;*
6. *To define the areas of standardisation required in the Network and to suggest minimum level of standardisation for effective compatibility and participation in the three component areas of the Network, viz, database, data communication and computer hardware and software;*
7. *To suggest (a) an action plan for implementation and (b) management mechanism including financial and personnel requirements to maintain and sustain the Network in short-term and long-term;*
8. *To prepare within 3 months a Project Report (PR) for developing a Network based on the above factors.*

The members of the Working Group, drawn from different departments to work on a full time basis, were assisted by experts/senior officials of some representative organisations from library/information, computer and communication who were associated with the Working Group as part-time members. The Working Group has since submitted its report. We are pleased to publish a summary of the Report for the benefit of our readers.

Introduction

This report sets out a project proposal for the establishment and development of an Information and Library Network, in short called as INFLIBNET, in the country during the Eighth Five Year Plan (1990-1995) period.

- INFLIBNET is a computer-communication network of libraries and bibliographical information centres.
- It is a major national effort to improve capability in information transfer and access, that provide support to scholarship, learning, research and academic pursuits.
- Institutions of Higher Learning covering all disciplines, R&D institutions and national organisations like CSIR, ICAR, DRDO, ICMR, ICSSR, ICHR, AICTE, DAE, DOT, DOE, Indira Gandhi National Centre for Arts, etc., participate in the INFLIBNET.

What is INFLIBNET

- INFLIBNET is a cooperative network and will contribute to pooling, sharing and optimisation of resources, facilities and services of libraries and information centres in the university system as well as in the R&D complexes.
- It is a major programme towards modernisation of libraries and information centres in the country, with application of computer and communication technologies.
- INFLIBNET is a multiple function/service network. It will offer catalogue based services, database services, document supply services, collection development and communication based services.

Why INFLIBNET ?

- Approximately a total sum of Rs. 150 crores/annum is spent towards books and journals by all the libraries concerned with higher education.

- Still a researcher/faculty in any institution is handicapped due to paucity of resources and services offered by his library. It is neither possible nor feasible to fund all the libraries in the country so as to be self-sufficient in meeting fully the needs of their users.

- Instead, if users are enabled to have access to holdings of each other library, the total national resources could be utilised optimally by everyone. This will also ensure that the libraries avoid, to a great extent, duplication in procuring costly books/journals and aim at developing more unique collection.

- Overall economy and improvement of efficiency as well as minimising the incidence of financial and other constraints faced at the level of individual libraries are expected to accrue from the network. Apart from this, the academic communities could, through the network, establish instant contact with their counterparts in any part of the country for academic conversation.

How INFLIBNET will function ?

- INFLIBNET is a versatile, integrated library and information system; yet, it operates at different levels—national, regional, sectoral and local.

- The catalogue of libraries will be aggregated bottom-upwards i.e., from college/department to university library and to regional centre. Secondary information/database maintenance and services will be taken care of by sectoral information centre.

- End users will be served mainly at local level such as college, department, university and R&D institution. About 400 nodes are planned initially for this purpose.

- There will be a national centre for managing, overseeing and coordinating the affairs of the network and four regional centres (North, East, West and South) which will maintain union catalogue of holdings of libraries in the regions and database of projects, institutions and specialists.

- At the sectoral level, UGC information centres-present (3) and proposed, NISSAT Sectoral Information Centres and other centres which perform national level functions and services in specific subjects/disciplines/missions are included.

- The sectoral centres will acquire, create and access retrospective and current bibliographic databases and offer a variety of modern information services.

- As many as 100 university and R&D institutional libraries will be designated and equipped to serve as document resource centres for purpose of document delivery service.

Standardisation in Operation and Service

- Uniformity in techniques, procedures and methods among participating libraries is a pre-requisite for networking.

- Standardisation in library and information practices is, therefore, stressed upon.

- The INFLIBNET will have its own standards based on existing national and international practices, for uniform adoption throughout the network. These relate to areas like classification, subject heading, cataloguing, input format, exchange format, physical format and information processing.

Application Software Requirement

- While emphasising upon software compatibility as a major factor in the computerisation programme of the INFLIBNET, prospects and potentials for developing application softwares for different types of services and for different nodes have been discussed in this report.

- A strategy for developing application software packages for the overall requirements of INFLIBNET as well as for automation at individual library level has been indicated in the report.

INFLIBNET Services/Functions

Following table gives the network services/functions at different levels.

NETWORK SERVICES/FUNCTIONS AT DIFFERENT LEVELS

Services/Functions	NC	RC	SIC	UL	CL/UDL	CDL	R&DC
Services							
— Cataloguing		Y		Y	Y		
— Catalogue Production		Y		Y	Y		
— Catalogue Search		Y		Y	Y	Y	
— Collection Development				Y	Y		
— Book Processing				Y	Y		
— Inter-Library Loan				Y	Y	Y	Y
— Document Delivery	—		Y	Y	Y	Y	Y
— Referral	Y	Y	Y	Y	Y	Y	Y
— Electronic Mail	Y	Y	Y	Y	Y	Y	Y
— Bulletin Board	Y	Y	Y	Y	Y	Y	Y
— Bibligraphic Database Search	—	—	Y	Y	Y	Y	Y
— Database of Projects, Specialists, Institutions		Y		Y	Y	Y	Y
— Union Catalogue	—	Y					
— Retrospective Bibliographic Databases Search	—		Y				
— Selection Dissemination of Information	—	—	Y				Y
— Current Awareness Service	—	—	Y				Y
Functions							
— Library Automation Circulation						Y	Y
— Management	Y	Y	Y	Y	Y	Y	Y
— Standardisation	Y	Y	Y	Y	Y	Y	Y
— Library Automation—all sub-systems				Y	Y		Y
— Administration	Y			Y			
— Training System /Service	Y	Y	Y	Y			
— Development Support	Y	Y	Y	Y			Y
— Technical Services	Y	Y	Y	Y			Y
— Consulting	Y	Y	Y				
— Communication	Y						
— Switching	Y						
— Maintenance	Y						
— Marketing	Y						
— Publicity	Y						

Note : Services and Functions are not listed according to priorities.

Explanation : NC : National Centre
RC : Regional Centre
SIC : Sectoral Information Centre including UGC Information Centres
UL : University Library, and
CL/UDL : Library of College/Department of University
CDL : Centralised Department (University) Library
R&DC : Research & Development Centre Library
Y : Yes

Hardware System Requirement

- It is essential that all the participating nodes of the INFLIBNET have a suitable computer system.
- Keeping in view the functions and services as well as features characteristic of different levels, technical specifications of the computer hardware system and the infrastructure thereof for regional centre, sectoral information centre, university library (Big, Medium, Small), College library and R&D Institutional Library have been drawn.

Communication System

- Taking into consideration parameters such as multiple functions, multi-tier organisation, system hierarchy, connectivity requirements, traffic characteristics and volume of traffic flow, a suitable communication architecture for the INFLIBNET has been proposed.
- A hybrid version of satellite and therestrial networking is recommended.
- The communication system will have a central hub and 400 ground terminals at 150 university libraries 50 autonomous colleges/PG centres and 200 others comprising R&D Institutions, document resource centres and sectoral information centres, to be inter-connected via satellite link.
- For inter-connecting the nodes in a city, when they are many, local area network is advocated.
- In view of random traffic pattern, the Slotted Aloha scheme for uplinking from small terminals and the TDM scheme for uplinking from the central hub have been selected.

Retrospective Conversion of Records

- For catalogue based activities like shared cataloguing and union catalogue, about 9 million unique catalogue records of retrospective collections of 179 university libraries have to be converted/unified into a common catalogue database by a prescribed standard practice.
- A part of the work will be attempted by matching the catalogue records with those available from down-loaded imported tapes/catalogues such as LC-MARC, OCLC and WLN of USA.
- A plan of action to complete the work in a period of two years with students' assistance has been drawn.
- A mechanism has been suggested for inputing and processing ongoing catalogue data in a machine readable form.
- The ultimate aim is that the university libraries will have a unified catalogue in a machine readable form.

Personnel Requirements

- The INFLIBNET will be provided with an adequate complement of professionally qualified personnel to man the network and to provide information services to the users.
- The personnel requirement for units, levels and network as a whole has been projected.
- Towards staff development, more particularly in the context of introducting computer and communication technologies, long term and short term as well as regular and continuing education training programmes, to be carried out at national and regional centres, have been planned.

Management Mechanism

- The management mechanism of INFLIBNET provides for establishment of INFLIBNET as a Registered Society with the office located in New Delhi.
- INFLIBNET will have a policy making Governing Council, a Governing Body for taking executive decisions and Statutory Committees like Finance Committee and Technical Advisory Committee.
- The Director of the National Centre will be responsible for administration and management of the INFLIBNET.
- Being a national mission and a multi-institutional project, UGC, Science Agencies/Departments and other organisations interested in library, information, computer and communication areas are adequately represented in the management machinery.

Pre-Project Activities

- Before the INFLIBNET is implemented there is a need to prepare detailed guidelines in vital areas like network design, communication software, library automation, development of union catalogue, retrospective data conversion and database services.
- With the help of expert task groups constituted for the purpose, the above mentioned guidelines are proposed to be worked out.

— These technical details will constitute the guidelings for implementing the IMFLIBNET at all levels.

Implementation Mechanism

— Activities leading to the fulfilment of the targets will be carried out in four years and in two phases of two years each, starting from April 1990 i.e., first year of the Eighth Five Year Plan.

The targets to be aimed at in the implementation are :

(i) Establishment of a National Centre and four Regional Centres.
(ii) Continuing the existing three UGC Information Centres.
(iii) Linking NISSAT and other Sectoral/National level Centres.
(iv) Linking atleast 200 R&D Institutions as network participants.
(v) Supporting and introducing automation in 170 university libraries and 500 college libraries.
(vi) Augmenting facilities in 100 libraries (or university and R&D institutions) to serve as document resource centres.
(vii) Establishing the communication system consisting of a central HUB and 400 ground terminals at 150 university libraries, 50 PG centres/autonomous colleges and R&D Institutions.

Cost Implications

— The cost incidence of the project relates to :

(i) Creation of national centre and four regional centres.
(ii) Support to 170 university and 500 college libraries for library automation and 200 R&D Institutions for participation in the INFLIBNET.
(iii) Upgrading facilities of 100 document resource centres.
(iv) Communication linkages with about 40 sectoral and national level centres.
(v) Retrospective conversion of catalogue records.
(vi) Setting up of the communication system.

— The Government of India is to provide funds to the INFLIBNET Society to establish and run the Network.

— The total cost of implementing the INFLIBNET in the first four years comes to Rs. 15,068.45 lakhs comprising Rs. 10,300.82 lakhs for non-recurring and Rs. 4,767.63 lakhs for recurring. The major heads of expenditure are : Communication System (Rs. 2,939.00 lakhs), Provision of Computer System (Rs. 4,640.00 lakhs), Infrastructure (Rs. 1,780.00 lakhs), Data Capturing (Rs. 442.82 lakhs), Building (Rs. 178.00 lakhs), Personnel (Rs. 1,966.13 lakhs), Maintenance (Rs. 1,809.00 lakhs) and Document Collection, Contingencies, etc., (Rs. 1,313.50 lakhs).

In the I phase (April 1990—March 1992) a sum of Rs. 5,516.45 lakhs and in the II phase (April 1992—March 1994) a sum of Rs. 9,552 lakhs are required to implement the project.

Conclusion

— The progress to be aimed at in implementing the INFLIBNET in the first four years will set the pace for transforming the library scenario of the country towards modernisation, involving application of computer and communicton technologies.

— In the management of library and information system in the country at macro level, INFLIBNET, when fully established, will be a cost benefit action programme. ☐

MAHARSHI DAYANAND UNIVERSITY
ROHTAK

Invites applications on prescribed form (obtainable from the Press Manager, on payment of Rs. 2/- at counter or through I.P.O. of Rs. 3/-, by post) containing full bio-data with attested copies of testimonials for the award of University Research Scholarships in **Law** and **Geography** so as to reach the concerned Head of Dept. of this University latest by **28-1-89**. Scholarships @ Rs. 800/- per month + annual contingent grant of Rs. 3,000/- is tenable for two years in the first instance. Those possessing Master's degree with atleast 55% marks, preferably with M. Phil degree, below 30 years of age as on Ist July, 1988, can apply.

REGISTRAR

Convocation

Restructuring Education

"The National Policy on Education 1986 has taken note of stresses and strains on the education system for almost all aspects related to higher education and has aptly enunciated that we need to restructure our education in its content, direction and methodology" noted Prof. S.K. Khanna, Secretary, University Grants Commission while delivering the Convocation Address at the 37th Annual Convocation of the Gujarat University, Ahmedabad. "Even if we accept scientific and rational planning of our education system, there is a need to inbuild in it a philosophical support. The education will thus have to be oriented towards attainment of the universal objectives, namely, making perfect individual and preparing him to be a useful and responsible member of the society", he added. Excerpts.

You belong to a small fraction of India's total youth population which is fortunate to have received an opportunity for university education. Even with 150 universities and over 6000 colleges in India, the percentage of youth population which is able to receive opportunities for higher education is very small and as years go by, the demand on the higher education system is going to increase steeply. Even if we have more universities and colleges added, we will never have a balanced demand and supply status for the higher education sector. There will be always a gap. It is therefore appropriate that timely measures are taken to adopt innovative ways of enhancing opportunities for having greater enrolment in higher education institutions.

The National Policy on Education, 1986 has taken note of stresses and strains on the education system for almost all aspects related to higher education and has aptly enunciated that we need to restructure our education in its content, direction and methodology. As we go by, the universities and colleges offering formal education at present will have to adopt and participate in a non-formal education methodology. It is fortunate that realising these aspects and needs, the Government of India has recently established Indira Gandhi National Open University to offer distance education programmes and to interface it with formal education system by adopting the existing vast family of higher education institutions. I see a great advantage in this approach, because when we add a dimension of distance education methodology into the formal system, the existing infrastructure could be effectively and efficiently used with marginal additional financial inputs. The time has come when the universities involved in some form of distance education, at present, become more scientific and rational and develop their involvement with the National Open University.

On one hand, we have very low enrolment of the youth in higher education sector when compared to the total India's youth population. While on the other hand, we are faced with situations where educated youth is either underemployed or has no employment in some of the subject areas. One has to therefore look back and review the role of a university in the task of manpower training. If the society is unable to offer enough job opportunities, there must be a mis-match between the content of education and the real life situations. To offset such a mis-match, there has been a recommendation in the National Education Policy to devise a system for providing opportunities to the youth population to enter into the society at an appropriate age and immediately link themselves with economic activities. They could retain their desire to pursue higher education and fulfil it in a phased manner through formal and non-formal education programmes as they grow. We call this as delinking of degrees with the jobs. Possibly when such youth employees opt for higher education later in a phased manner, they would know, what they should learn and how much to learn. Rewards of such process of education would be very high. I must hasten to mention that our country is a great country and it has massive resources in terms of land, water, sources of energy, mineral resources, raw material and above all, a vast manpower. If the resources and the manpower are well coordinated, I see no reason why the poverty among millions of our population cannot be uprooted.

It is more gratifying when we analyse the placements of graduates and postgraduates coming out of the universities in the State of Gujarat. We find that most of the students while they are in the universities, have made up their minds to generate, mostly self employment, small or big. My personal assessment is that a very high percentage of the fresh graduates/postgraduates in the Gujarat State generate their own employment. This phenomenon needs to be encouraged and should have geographical transfer in many States of our country. In doing so, we shall lessen the burden on the governmental support system and it would generate employment opportunities around individual educated person for those who were not fortunate to receive the university education.

While considering that it is essential for the universities to strengthen the scientific and technological ability, we should keep in mind that the technology is not to be worshipped in a superstitious manner, but is to be used for the good of common man. The country would pollute itself if the technology is taken as a master controller instead of it being an excellent service centre. The importance of science and technology in higher education sector in a vast country like India cannot be exaggerated at any time, more so at this juncture of the history when we are making a deliberate attempt to be the forerunner in the development race. The recent efforts in the development process would show our enthusiasm, our successes and the situations confronted with new difficulties. Even the question has been raised on the type of technology and technological education which we need today in India. It has been argued that such education and training should be suitable to our local conditions of resources endowment and labour surplus economy. The technology must provide employment to the millions of people especially in the rural and semi-urban areas. Unfortunately, the scenario of modern technology in developed countries is around one single factor, that is, labour saving and nacessarily it is capital deepening. Our science and technology will have to evolve indigenous solutions to maintain the technology at its highest excellence on the one hand and on the other, it should generate massive unskilled and semiskilled employment opportunities. This is the status of technological duality for us. The universities would have to take a lead in solving this problem.

Some times the nature of science and technological education and research in the university system appears to be abstract and theoretical and in vacuum. This status will be very unfortunate for us because India can ill-afford research for the sake of research. It is therefore necessary that as enunciated in the National Policy on Education, the research and development programmes existing in university system and other research institutions should be tied up timely; and designing and implementing research programmes should be relevant to the changing environments and must be around finding applications of new knowledge.

There have been distinguished reports on education by eminent persons in the last 40 years and all these reports reflect that our educational planning however sincere, has been either piece-meal or lopsided. It has been accepted that we need to make it more balanced, well integrated and comprehensive. Even if we accept scientific and rational planning of our education system, there is a need to inbuild in it a philosophical support. The education will thus have to be oriented towards attainment of the universal objectives, namely, making perfect individual and preparing him to be a useful and responsible member of the society. In the words of Mahatma Gandhi "man is neither intellect nor the animal body nor the human soul alone. The proper and harmonious combination of these three is required for the making of the whole man". For the sake of attaining excellence in the science and technology education, universities should be alert that these pursuits do not influence the basic quality of human beings and we do not produce manpower as a mere economic commodity.

By the time the young graduates would leave the portals of the university, irrespective of whether one has been a student of science or humanities or technology, one should interpret fact and their relations towards the cause. One must be able to distinguish the true and false, right and the wrong. The main input of the university education is cultivation of mind, because with this alone, we can counteract the difficulties and face challenges. ☐

Association of Indian Universities

Applications are invited on plain paper for a temporary post of Research Associate for a duration of 4½ months on a consolidated salary of Rs. 2,000/- p.m. under the research project on "Trend in Educational Expenditure Among Central and State Universities". The project is sponsored by the Planning Commission.

Candidates should have first or second class Master's degree in Economics/Statistics with atleast two years' experience in Economic and/or educational research. Candidates having Mathematics/Statistics/Econometrics at graduate level as optional subject will be preferred.

The applications complete in all respects should reach the Secretary, Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi 110002, within 10 days from the issue of this advertisement.

Oil from Agricultural Residues

Scientists at the Indian Institute of Technology (IIT), Delhi are reported to have developed a process to produce oil from agricultural residues such as straw. The lab scale process developed at the IIT Biochemical Engineering Research Centre (BERC) makes the cells of the yeast "Rodhoturula Gracilis" use either rice straw or sugarcane molasses to churn out oil. The microbial oil is comparable to palm oil in composition and could be used as a substitute for industrial oils in the country.

The IIT team has estimated the production potential of microbial oil to be about 350 kilograms per hectare from rice straw and 200 kilograms per hectare from sugarcane molasses.

Yeast cells are tiny micro-organisms capable of digesting sugar molecules obtained from rice straw or molasses and producing oil.

The BERC process involves feeding the sugar from the agricultural residues into a device called a bio-reactor that contains a nutrient medium for the yeast. Yeast cells inside the reactor begin to digest the sugar and within a few days start manufacturing the oil.

The cells yield upto 50 per cent of their weight in oil and leave behind nearly 45 per cent of protein-rich cellular matter which can be used as cattle or poultry feed. A cost analysis done at the BERC has indicated that the microbial oil would cost Rs. 13 or Rs. 16 per kilogram depending whether it is extracted from rice straw or molasses bioreactions.

Nine Crores for COSIST Programmes

The University Grants Commission (UGC), it is reported, will spend some Rs. 9 crores during this financial year to introduce innovative science courses in select university departments. The objective is to help the departments modernise their curriculum, promote laboratory work and give an inter-disciplinary thrust to their courses.

So far, 93 departments in a number of universities have introduced these courses under the Scheme of Strengthening of Infrastructure of Science and Technology (COSIST). The areas include physics, chemistry, life sciences and bio-sciences, mathematics, earth sciences and engineering.

The COSIST, which aims at encouraging research at the post-graduate level, was launched by the UGC in 1983-84 on the recommendations of the Science Advisory Committee attached to the Union Cabinet.

Information Centre for Doctoral Theses

The Documentation and Library Service Directorate of the Tamil University has launched a computerised information centre for doctoral dissertations on any aspect of Tamil Nadu submitted to Indian Universities from 1857 todate. The subjects covered include Science, Fine Arts, Literature, Religion, Philosophy, History, Political Science, Economics and Sociology as related to Tamil Nadu. The data is based on the bibliographies of doctoral dissertations published by the Association of Indian Universities and it is proposed to update the data base every week on the basis of the information published in the columns, "Theses of the Month" in the University News.

Tamil University also proposes to add to this computerised data base doctoral dissertations related to Tamil Nadu submitted in Britain, United States, France, etc.

WCCI Regional Conference

The first Regional Conference of the World Council for Curriculum and Instruction—India Chapter on "Education for Development of Human Resources" was hosted by the Bombay University. Inaugurating the conference Dr. P.L. Malhotra, Director, NCERT, observed that Education has to play the role of a catalyst of human resource development and the National Policy on Education has great expectations from the teacher in this regard. Dr. M.D. Bengalee Vice-Chancellor, Bombay University, stressed the importance of the theme of the conference while Dr. R. Bharadwaj, Director, Department of Economics, delivered the keynote address. Dr. B.P. Lulla, Principal, Bombay Teachers' Training College and the Chairman of Organising Committee, welcomed the gathering.

Prominent educationists presented their papers on topics related to Human Resource Development which were discussed by the participants. Prof. Kamalini Bhansali, Vice-Chancellor, S.N.D.T. Women's University delivered the valedictory address at the four-day conference which was attended by distinguished educationists like Dr. (Smt.) Selvio Das, Vice-Chancellor, Mysore University and Mr. N. Emanuel of Sri Lanka.

Concrete Research at TIET

The Civil Engineering Department at Thapar Institute of Engineering & Technology (TIET) fabricated a new composite cement concrete in which a weak matrix is reinforced with a stiff and strong matrix so as to produce a composite of superior properties. Mechanism of creep and shrinkage, which are time dependent properties, have been virtually unexplored in relation to concrete. A research project has been undertaken by Mr. V.S. Batra, Assistant Professor, with Dr. C.B. Kukreja as principal investigator and Dr. R.B.L. Bedi as a co-investigator to study the influence of these parameters on the stability of concrete structures.

The studies being undertaken at the Institute include: (i) Static modulus of Elasticity; (ii) Uniaxial compressive creep flow for concrete mines of different strengths; (iii) Dynamic modules of concrete; (iv) Shrinkage strains for different mixes; and (v) Deflection of beams.

Wave Energy Power Station

The Indian Institute of Technology, Madras, under the sponsorship of Department of Ocean Development, Government of India, is setting up a proto-type 150 kw Wave Energy Power Station, on trial basis, at Vizhinjam, near Trivandrum. Considered first of its kind in the world, the system is expected to become operational by March, 1989. The system is based on the Oscillating Water Column (OWC) principle.

Flow Visualisation Project

VW Foundation has approved a Project titled "Flow Visualisation Using Lasers" to be carried out in collaboration with the Bergische Universitat, Wuppertal, Federal Republic of Germany and the Ocean Engineering Centre, IIT-Madras. Fully financed by the VW Foundation, a complete flow visualisation set up will be installed at a cost of Rs. 6.00 lakhs.

Green Canopy

The Environmental Society, IIT-Madras, has been named "Green Canopy" with a motto "Nurture Nature". The Society under the convenorship of Prof. P.T. Manoharan of RSIC/Chemistry, IIT-Madras, has received a fund of Rs. 10,000/- from the Environmental Services Group, WWF, to conduct an Awareness Campaign. The Society conducted a two-day Seminar during 7th-8th January 1989, with participation by Environmental Specialists.

Centres for Information Technology Proposed

Twelve new Centres for Information Technology (CIT) will begin operating at various educational institutions in the country, beginning mid-1989. According to Mr. H.P. Nambiar, Secretary in the Department of Electronics (DOE), the centres will be located at the five Indian Institutes of Technology, the Indian Institute of Science in Bangalore and six other institutions, selected from regional engineering colleges and some universities.

Centre for Latin American Studies

The Goa University has set up a Centre for Latin American Studies, the first of its kind in the country funded by the University Grants Commission (UGC). Goa University has been chosen because of its long association with Spain and Portugal. It has immense material on Spanish and Portuguese history.

Itihas Bhawan for Punjabi Varsity

The Punjabi University has resolved to erect an "Itihas Bhawan" for the preservation of personal libraries, donated by prominent historians and litterateurs to the University. The University has so far acquired 23 donated personal libraries and the number of books and other material in these libraries is nearly 50,000.

The University has also decided to publish life-sketches of the donators and a comprehensive catalogue for the benefit of researchers.

News from Abroad

Third World Sciences Centre

The United Nations is to establish three research and training institutions covering chemical materials, and high technology and the environmental sciences. They will be eventually amalgamated into a global centre devoted to the developing nations.

Italy has made a $ 1.55 million

contribution towards the establishment of the science and high technology training centre. The institution may well emerge as a dominant force in the next decade shaping higher education as well as industrial development in the third world.

The International Centre for Science and High Technology is being set up in Trieste, Italy, under the United Nations Industrial Development Organization (UNIDO). It will provide a basis for training and research in such spheres as medical physics, nuclear fusion and space communications.

The two-year preparatory phase of the project is being guided by a panel of distinguished scientific advisers chaired by Professor Abdus Salam, Nobel Laureate and President of the Third World Academy of Sciences.

UNIDO has established an international research and training institution concerned with genetic engineering and biotechnology devoted to the needs of the third world. The young institution comprises two major components, one in Trieste and one in Delhi, co-operating and co-ordinating the work of many affiliated scientific centres around the world.

A similar model is to be used for the projected science and high-tech centre. It will comprise three new, separate international institutes, all of them based in Trieste and covering the chemical sciences, materials science and high technology and the earth and environmental sciences and technologies. They will be eventually amalgamated to form the centre.

A spokesman for UNIDO said, "The project is to provide scientists from the poor countries with training and research facilities as well as an opportunity to work with world-class colleagues.

"The poor countries have very little capacity for research in chemical and material sciences, materials engineering and earth and environmental sciences.

"The new institution is to provide them with a scientific base for pure and applied research. That is a prerequisite for the sound development of their industrial and technological capabilities."

The Italian government is among the first to contribute financially towards the establishment of the institution. It is also among the sponsors of the UN's genetic engineering and biotechnology centre and of the Third World Academy of Sciences based at the International Centre for Theoretical Physics.

Both the physics centre and the science academy are headed by Dr. Salam, a Pakistani physicist who shared a Nobel prize in 1979 for his work of elementary particles.

His academy was launched five years ago to foster the basic science capabilities of the third world and to promote collaboration in research and training among the poor countries. And it had made the ancient, scenic Adriatic port city of Trieste an important meeting place of bright scientific minds from all corners of the world.

The Trieste component of the UN's recently established gen-tech institute houses research groups dealing with DNA replication, virology and biomass conversion and upgrading. The Delhi component covers plant biology, hepatitis and malaria. [*Courtesy* : Times Higher Education Supplement, 2 December 1988].

Post-Doctoral Travel-Only Grants

The United States Educational Foundation in India has invited applications for a limited number of 1989-90 Post-Doctoral Travel-Only Grants to the U.S. from Indian scholars who have invitations to visit U.S. beginning September 1989 or later for (a) Research or teaching assignments for a minimum period of three months; (b) Faculty engaged in Inter-institutional collaboration, with Indian government approval, for a visit of one to three months; and (c) Candidates in the field of social sciences, humanities, fine arts, and performing arts with invitations from recognised institutions, colleges and universities for a professional visit of two to three months.

Grants are not available to attend international conferenees and seminars.

Candidates must: (1) have a Ph.D. degree or equivalent published work. (This may be waived for candidates in B&C categories); (2) be an Indian citizen and be present in India on the closing date of competition; (3) be proficient in English; (4) be in good health: and (5) not have been in the U.S. during the last four years to teach, to do research or on a professional assignment.

Further details can be had from the Director, United States Educational Foundation in India, "Fulbright House", 12 Hailey Road, New Delhi-110001.

The last date of submission of applications is 15 May, 1989.

Diploma in Intellectual Property Law

The University of Melbourne plans to introduce diploma course in intellectual property law, which covers the development, legal protection and licensing of new technology. The course has been designed for law and non-law graduates who need practical and academic training in the law covering patents for inventions, confidential information and trade secrets, industrial designs, copyright, trade marks and unfair competition.

The planned course, the Graduate Diploma in Intellectual Property Law, is subject to the approval of the Victorian State Post Secondary Education Commission. The course will be led by an international expert in intellectual property law, Professor Jim Lahore, a partner in a Melbourne law firm, and a team of experts under his direction. The course has been designed to suit graduates from developed and developing countries.

SPORTS NEWS

Inter-IIT Sports Meet

The XXV Inter-IIT Sports Meet 1988 was held in IIT-Madras from 12th to 16th December, 1988. Among the 12 events conducted in the Men's Section, IIT-Madras got placings in 11 events and annexed the General Championship Trophy. IIT-Madras won Gold in Shuttle Badminton, Basketball, Table Tennis, Tennis and Kabaddi; Silver in Athletics, Cricket, Hockey, Volleyball and Weight Lifting; and Bronze in Football.

The overall points secured by various IITs are : IIT-Madras (88); IIT-Bombay and IIT-Kanpur (46 each); IIT-Kharagpur (28); and IIT-Delhi (26).

In the Women's section, IIT-Kharagpur won the General Championship Trophy with a tally of 24 points. IIT-Madras was second with 20 points.

UGC Grant for Punjabi Varsity

The University Grants Commission has sanctioned Rs. 16.50 lakh for the sports complex to be built at Punjabi University, Patiala. A sum of Rs. 7.50 lakh will be spent on swimming pool and another Rs. 7.50 lakh on additional accommodation with Gymnasium and stadium. The remaining amount will be spent on lighting at the University Stadium. An equal matching grant of Rs. 16.50 lakh for the sports complex will be given by the Punjab Government.

AWARDS AND MEDALS

- Dr. V. Damodara Das, Assistant Professor, Thin Film Laboratory, Physics Department, IIT-Madras, has been awarded the "Hari Om Ashram" Pretit H.C. Shah Research Endowment Prize for the Best Research in Solid State Physics (during the years 1983-87) in India. The Award comprises a Gold Medal and cash, both amounting to Rs. 5,000/-.

- The Paper entitled "Cascade Characteristics of 'S' Cambered Profiles" authored by Prof. H.C. Radha Krishna, Hydroturbomachines Laboratory, Mechanical Engineering Department, IIT-Madras and Prof. P.A. Aswatha Narayana, Applied Mechanics Department, IIT-Madras, has been selected for the Award of Sri Rajendra Nath Mookerjee Memorial Gold Medal for 1987-88 by The Institution of Engineers (India).

- The Indian Society for Technical Education, during its 18th Annual Convention held from 21st to 23rd December 1988 at Pune, awarded the Third Prize (Medallion, Citation and Cash) to Shri R. Suraj and Shri K.V. Shankar, Final Year B. Tech. Students in Metallurgical Engineering of IIT-Madras for their entry "A Portable Boring/Cutting Unit Based on the Principle of Electrolytic Heating". The work of the students was carried out under the supervision of Prof. R. Vasudevan, Metallurgical Engineering Department, IIT-Madras.

- Five Indians are among the ten young scientists from South Asia selected for the UNESCO/ROSTSCA awards for young scientists, 1988 for their contribution to basic and applied sciences.

The recipients are : Dr Sudha Jain (medicinal chemistry), Dr. N. Raman (applied microbiology/biotechnology), Dr. Siddhartha K. Soni (geological sciences), Dr. Madhoolika Agarwal (ecological sciences) and Dr. Dilwar Singh (new and renewable sources of energy).

The award, instituted in 1985, is to encourage young talent in the international year of youth and is given every year to scientists under the age of 35.

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertation as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Chauhan, Surendra Vikram Singh. *On some problems in topology.* HS Gour. Dr. K.K. Dubey, Department of Mathematics and Statistics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

2. Dube, Pradeep Kumar. *Some problems on fixed point theorems.* HS Gour. Dr. K.C. Shrivastava, Reader, Department of Mathematics and Statistics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

3. Guru, Kavita. *Some problems on summability methods.* HS Gour. Prof. S.K. Shrivastava, Department of Mathematics and Statistics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

4. Guru, Narendra Kumar. *Quasi injective modules.* HS Gour. Dr. R.S. Singh, Department of Mathematics and Statistics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

5. Jain, Arun Kumar. *A study of some topics of compactness in topology.* HS Gour. Dr. R.K. Namdeo, Department of Mathematics and Statistics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

6. Jain, Chandra Kumar. *Some problems in approximation theory through Fourier analysis.* HS Gour. Dr. K.C. Shrivastava, Reader, Department of Mathematics and Statistics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

7. Kalra, Savita. *Multipliers of some algebras with order convolution.* Panjab. Prof. H.L. Vasudeva, Department of Mathematics, Panjab University, Chandigarh.

8. Kashyap, Vinod Kumar. *Some problems on Fourier series and allied series.* HS Gour. Dr. K.C. Shrivastava, Reader, Department of Mathematics and Statistics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

9. Khare, Srikant, *Some problems on approximation by Fourier series and associated series.* HS Gour. Prof. S.K. Shrivastava, Department of Mathematics and Statistics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

10. Namdev, Babulal. *Some generalizations of compactness.* HS Gour. Dr. K.K. Dubey, Department of Mathematics and Statistics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

11. Pandit, Sheshadri Nath. *Some generalizations of continuous function.* HS Gour. Dr. P. Prasad, Department of Mathematics and Statistics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

12. Patel, Birendra Narayan. *Some problems in general topological spaces.* HS Gour. Dr. K.K. Dubey, Department of Mathematics and Statistics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

13. Sainger, Rajendra Kumar. *A study of semi topological classes.* HS Gour. Dr. K.K. Dubey, Department of Mathematics and Statistics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

14. Saraf, Ajay Kumar. *Fixed point theorems for various mappings.* HS Gour. Dr. R.K. Jain, Reader, Department of Mathematics and Statistics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

15. Sharma, Deepak Kumar. *Some topics of compactness in topology.* HS Gour. Dr. R.K. Namdeo, Department of Mathematics and Statistics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

16. Sharma, Sunil Kumar. *Some problems on fixed point theorems.* HS Gour. Prof. S.K. Shrivastava, Department of Mathematics and Statistics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

17. Thakur, Jai Singh. *Some problems in general topology.* HS Gour. Dr. K.K. Dubey, Department of Mathematics and Statistics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

18. Tiwari, Mahendra Pratap. *Some problems on fixed point theorems.* HS Gour. Prof. P.L. Sharma, Department of Mathematics and Statistics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

19. Tiwari, Shailesh Kumar. *A study of continuity and its generalizations.* HS Gour. Dr. R. Prasad, Department of Mathematics and Statistics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

Physics

1. Jain, Kailash Chand. *In-beam gamma ray spectroscopy from charged particle reactions.* Panjab. Prof. I.M. Govil, and Dr. Gulzar Singh, Department of Physics, Panjab University, Chandigarh.

2. Mujawar, H.A. *Synthesis and studies of high Tc superconducting oxide films.* Shivaji. Dr. S.H. Pawar, Department of Physics, Shivaji University, Kolhapur.

3. Patil, R.S. *Electrical and magnetic properties of mixed and substituted ferrites.* Shivaji. Dr. S.R. Sawant, Department of Physics, Shivaji University, Kolhapur.

4. Vohra, Anil. *Study of AC impedance and device applications of some switching and silver-doped materials.* Panjab. Dr. K.K. Srivastava, Department of Physics, Panjab University, Chandigarh.

Chemistry

1. Antony, Thomas. *Peptide nuclectide interaction.* Delhi. Prof. M. Atreyi, Department of Chemistry, University of Delhi, Delhi.

2. Gulati, Anju. *Synthesis and biomimitic studies of selected porphyrins and phthalocyanines.* Delhi. Dr. S.M.S. Chauhan, Department of Chemistry, University of Delhi, Delhi.

3. Hanamapure, B.B. *Developmental studies in penicillins.* Shivaji. Dr. A.R. Shelar, Department of Chemistry, Shivaji University, Kolhapur.

4. Joseph, M.A. *Studies on polymer network systems with reference to hydroxical terminated poly butadene resin and aromatic diols.* Kerala. Dr. K.V.C. Rao, Deputy Director, S.P.P.C. VSSC, Trivandrum and Dr. C.P. Joshua, Prof. and Head, Department of Chemistry, University of Kerala, Trivandrum.

5. Magan Prasad. *Synthesis in oxygen hetero cyclic compounds.* Prof. A.C. Jain, Department of Chemistry, University of Delhi, Delhi.

6. Rathod, A.A. *Ion exchange chromatographic separation of some meta l ions in mixed media.* Shivaji. Dr. S.V. Kulkarni, Department of Chemistry, Shivaji University, Kolhapur.

7. Roy, Bijoy Krishna. *Aggregational studies of metal diethylhexyl sulphosuccinates in nonpolar media.* Delhi. Dr. Amar Nath Maitra, Department of Chemistry, University of Delhi, Delhi.

8. Sreedhar, M.K. *Pyrazolone derivatives of iron, chromium, manganese and titanium.* Kerala. Dr. M.R. Gopalakrishnan Nair, Prof. College of Engineering, Trivandrum.

Engineering & Technology

1. Nair, Siva Sankar S. *Parallel computing and algorithms for scheduling problems.* Kerala. Dr. M. Ramachandra Kaimal, Reader and Head, Department of Computer Science, University of Kerala, Trivandrum.

2. Nair, Suma P. *Simulation study of atmosphoric processes.* Kerala. Dr. K. Revathy, Programmer, Department of Computer Science, University of Kerala, Trivandrum.

3. Sherly, Elizabeth. *Algorithms and software for the analysis of certain control processes.* Kerala. Dr. M. Ramachandra Kaimal, Reader and Head, Department of Computer Science, University of Kerala, Trivandrum.

BIOLOGICAL SCIENCES

Anthropology

1. Gill, Harpreet. *Epedemiology of breast cancer in Punjab : A study of cultural, demographic and serogenetic correlates.* Panjab. Dr. Surya Prakash, Department of Anthropology, Panjab University, Chandigarh and Prof. V. Bhalla, Department of Anthropology, Panjab University, Chandigarh.

Biochemistry

1. Hari Prakash, C.S. *Biochemical studies on dormancy and sprouting in yams.* Kerala. Dr. (Mrs.) Bala Nambisan, Scientist, C.T.C.R.I. Sreekaryam, Trivandrum.

2. Mago, Nandni. *Some aspects of lipid metabolism in Candida albicans.* Panjab. Dr. G.K. Khullar, Department of Biochemistry, Panjab University, Chandigarh and Dr. R.K. Jethi, Department of Biochemistry, Panjab University, Chandigarh.

3. Mann, Daljit Singh. *Effect of carbamate pesticides on the intestinal epithelium structure and functions in rats.* Panjab. Dr. Akhtar Mahmood, Department of Biochemistry, Panjab University, Chandigarh.

4. Sharma, Sucheta. *Studies on the molecular basis of cancer with special reference to cellular membranes and ribosome membrane interactions.* Panjab. Prof. H.M. Dani, Department of Biochemistry, Panjab University, Chandigarh.

Botany

1. Kulkarni, A.Y. *Studies on the effect of agricultural, domestic and industrial pollution on river ecosystem.* Shivaji. Dr. R K. Trivedy, Head, Department of Pollution, Y.C. College of Science, Karad.

2. Walia, Rama. *Mineral relationships of some Himalayan mosses.* Panjab. Prof. S.S. Kumar, Department of Botany, Panjab University, Chandigarh and Dr. M.L. Sharma, Department of Botany, Panjab University, Chandigarh.

Zoology

1. Banerjee, Snigdha. *Insect physiology.* Delhi. Dr. H.C. Aggarwal, Department of Zoology, University of Delhi, Delhi.

2. Bhardwaj, Dinesh Kumar. *Incidence of variations in the heterochromatin pattern of normal and diseased humans and those under environmental stress.* Panjab. Dr. R.S. Sobti, Reader, Department of Zoology, Panjab University, Chandigarh.

3. Dawale, R.K. *Studies on the natural enemies of some economic important crop pests with special reference to Hymnoptera.* Shivaji. Dr. T.V. Sathe, Department of Zoology, Shivaji University, Kolhapur.

4. Gill, Gurinder Bir. *Cytogenetic profiles of humans and mice exposed to environmental pollutants.* Panjab. Dr. G.P. Sharma, and Dr. R.C. Sobti, Reader, Department of Zoology, Panjab University, Chandigarh.

5. Gupta, Janak Raj. *Age and growth of some carps from Harike wetland, Punjab.* Panjab. Dr. K.K. Tandon, and Dr. M.S. Johal, Department of Zoology, Panjab University, Chandigarh.

6 Harjit Kaur. *Evaluation of cytogenetic damage in the peripheral blood lymphocytes (PBLS) of diseased humans and tissues of animals treated with organic xenobiotics.* Panjab. Dr. R.C. Sobti, Reader, Department of Zoology, Panjab University, Chandigarh.

7. Sharma, Pratibha. *Organism succession in Chandigarh sludge.* Panjab. Prof. H.S. Vasisht, Department of Zoology, Panjab University, Chandigarh.

8. Narinder Singh. *Taxonomic studies on some Indian Cicindelidae with special reference to external genitalia (Coleoptera : Insecta).* Panjab. Prof. H.R. Pajni, Department of Zoology, Panjab University, Chandigarh.

9. Saxena, Tanushri. *Neuroendocrine aspects of reproduction.* Delhi. Dr. R.N. Saxena, Department of Zoology, University of Delhi, Delhi.

10. Sinha, Suman Kumar. *Microbe pesticide interaction.* Delhi. Dr. D.M. Saxena, Department of Zoology, University of Delhi, Delhi.

Medical Sciences

1. Asthana, Jai Gopal. *Synthesis evaluat ion of some acidic nonsteroidal compounds as antiinfla matory agents.* HS Gour.

2. Deshpande, Supriya Satish. *Pharmacognistical and pharmacological studies on some medicinal plants.* BHU. Dr. V.K. Agarwal, Reader, and Prof. S.S. Gambhir, Department of Pharmacology, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

3. Dube, Manju. *Studies on plasma protein binding of some oral hypoglycemic and antiinflammatory drugs.* HS Gour. Prof. N.K. Jain, Department of Medical Sciences, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

4. Jain, Rajkumar. *Study on hydrotopic solubilization, formulation and evaluation of some drugs.* HS Gour. Prof. N.K. Jain.

5. Prakash Kumar, R. *Studies on alergenicity of airborne pollen of Kerala.* Kerala. Dr. P.M. Mathew, Prof. Department of Botany, University of Kerala, Trivandrum and Dr. P. Raveindran, Director and Prof., Department of T.B. and Respiratory Diseases, Medical College, Trivandrum.

6. Ratnakumari, N. *Etch pattern, bond strength of pit and fissure scalant at different etching time and the effect of oral fluid contamination : A study in primary and permanent enamel.* Kerala. Dr. George Jacob, Prof. and Head, Department of Orthodontics, Dental College, Trivandrum.

7. Saraf, Shailendra. *Investigations on some indigenous plants used in liver affections.* HS Gour. Prof. V.K. Dixit, Department of Pharmaceutical Sciences, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

8. Shakya, Ashok Kumar. *Synthesis and pharmacological evaluation of some 1-3-4 thiediezole derivatives.* HS Gour. Dr. Pradeep Mishra, Department of Pharmaceutical Sciences, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

9. Tharsu, Deepak Kumar. *Formulation and evaluation of transdermal drug delivery systems using pro-drug concept.* HS Gour. Dr. S.P. Vyas, Department of Pharmaceutical Sciences, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Dawn, Nemai Chand. *Study of wave propagation in solids, including problems of random media and random sources.* Burdwan. Prof. S.K. Chakraborty, Department of Mathematics, University of Burdwan, Burdwan.

2. Ferdausi, Razina. *Investigations on summabilities of infinite series and fixed point theorems in metric and banch spaces.* BHU. Dr. Ashok Saxena.

3. Mathew, P.M. *On the lattice of topologies and boolean spaces.* CUST. Dr. T. Thrivikraman, Prof. and Head, Department of Mathematics and Statistics, Cochin University of Science and Technology, Cochin.

4. Ram Reddy, D. *On unitary abundant numbers.* Osmania.

5. Shivakumaraswamy, M. *Parametric evaluations of afterbody drag.* Bangalore. Dr. N. Rudraiah, Prof. and Chairman, Department of Mathematics, Bangalore University, Bangalore.

6. Shivaraj, Biradar. *Theoretical studies of problems in fluid dynamics.* Karnatak. Dr. N.M. Bujurke, Reader, Department of Studies in Mathematics, Karnatak University, Dharwad.

7. Shrivastava, Manjulata. *Interpolation and approximation by discrete splines.* Durgawati. Dr. H.P. Dikshit, Vice-Chancellor, Rani Durgawati Vishwavidyalaya, Jabalpur.

Statistics

1. Budhabhatti, H.D. *Techniques of optimisation for inventory management under make-up pricing, advertising, and various costs.* Gujarat. Dr. B.B. Jani, School of Social Sciences, Gujarat University, Ahmedabad.

2. Pal, Manisha. *Some statistical problems in inventory management.* Calcutta.

Physics

1. Biswas, Mihir Kumar. *Studies on the miter relationship between tropospheric and ionospheric variations using correlation techniques.* Calcutta.

2. Chowdhury, Subhash Chandra. *Some studies on high frequency and optical properties of avalanche transit time devices.* BHU. Dr. B.B. Paul.

3. Gangadhar Reddy, G. *A theoretical study on some aspects of mixed valence systems.* Kakatiya. Dr. A. Ramakanth, Reader, Department of Physics, Kakatiya University, Warangal.

4. Mishra, Arpita. *Interacting boson model for nuclear structure studies.* BHU. Dr. A.N. Mantri, Reader, Department of Physics, Banaras Hindu University, Varanasi.

5. Rajagopalan, M. *Band structure and superconductivity of some of the hcp solids under pressure.* Anna.

6. Ramana Reddy, M.V. *The preparation and characterization of $NaYF_4$ and SmF_3 thin films.* Osmania.

7. Sen, Mina. *Electronic properties of some ordered and disordered solids.* Calcutta.

8. Venkataraman, S. *A study of bulk and thin films of $CuInSe_2$ and its applications to MIS and SIS devices.* Hyderabad. Prof. A.K. Bhatnagar, School of Physics, University of Hyderabad, Hyderabad.

Chemistry

1. Amir Hamya, S.M. *Lipid composition of Indian crudes and ancient sediments.* Calcutta.

2. Balakrishna, Hoskeri Madhukar. *Anion exchange selectivity in mixed solvent systems (2-Ethoxy ethanolwater).* Karnatak. Dr. C.S. Narke, Reader, Department of Chemistry, Karnatak University, Dharwad.

3. Bhattacharya, Jagannath. *Physico-chemical studies on selected aspects of clay catalyzed vinyl polymerization.* NBU.

4. Chandrasekhar Reddy, P. *Synthesis, antimicrobial and pharmacological evaluation of S-triazolo (4, 3-a) guinazolin 5-ones and S-triozolo (4, 3-a) quinazolines.* Osmania.

5. Das, Sanghamitra. *Studies on peroxidase hosted in reverse micelles.* Delhi.

6. Dasaradhi, L. *New syntheses of insect sex pheromones.* Osmania.

7. Desai, Kirtikumar Haribhai. *Estimation of metals in traces in high purity grade metals, alloys, pharmaceuticals and in the environment.* Baroda.

8. Gurachar, Nargund Laxmivenkatesh. *Synthetic studies in nitrogen and sulfur heterocycles of pharmacological interest.* Karnatak. Dr. V.V. Badiger, Prof. Department of Organic Chemistry, Karnatak University, Dharwad.

9. Handa, Sushma Kumari. *Chemical investigation on some Rutaceae, Umbellifereae, Piperaceae and Cupressaceae plants.* Jammu. Dr. K.L. Dhar.

10. Islam, Shakira S. *A study (1) on the mixed alkali effect in hydrate melts and (2) on the transport properties of concentrated aqueous electrolytes.* NEHU. Dr. K. Ismail, Department of Chemistry, North Eastern Hill University, Shillong.

11. Kannan, P. *A study of depolymerization of neyveli lignite.* Anna.

12. Koteswar Rao, Y. *Synthetic studies towards (±) laurenene and some reactions of geminal disulfones.* Hyderabad. Prof. M. Nagarajan, School of Chemistry, University of Hyderabad, Hyderabad.

13. Mahapatra, Harihar. *Studies on ammonia synthesis catalyst.* ISM. Dr. D. Guha, Asstt. Prof., Department of Applied Science, Indian School of Mines, Dhanbad and Late S.P. Sen, PDIL, Sindri.

14. Meenal. *Oxidation of some substituted 4-piperidenes by manganese (III) acetate in aqueous acetic acid : A kinetic and mechanistic study.* Bharathidasan.

15. Murugesan, V. *A study of kinetics of oxidation of styryl ketones by pyridinium chlorochromate and of substituent effects on their HNMR and infrared frequencies.* Anna.

16. Narayana, C. *Synthetic and mechanistic studies on the hydroboration of olefins with various borane Lewis Base Complexes.* Hyderabad. Dr. M. Periaswamy, School of Chemistry, University of Hyderabad, Hyderabad.

17. Narayana Murthy, A. *Total synthesis of natural products : Towards capnellene, precaphelladiene, longipenol and ikarugamycin,* Hyderabad Dr. G. Mehta.

18. Radha Krishna, K.V. *Some novel thermal and photochemical reactions in organic crystals.* Hyderabad. Dr. Goutam R. Desiraju, Reader, School of Chemistry, University of Hyderabad, Hyderabad.

19. Ravinder Nath, A. *Chemical studies on medicinal plants and synthesis of extra-nucleo heterocyclic triterpenes.* Osmania.

20. Ray, Sanghamitra. *Chemistry of plant products.* Calcutta.

21. Rotti, P.B. *Electrochemical and morphological studies on electrogrowth of copper.* Bangalore. Dr. B.S. Sheshadri, Reader, Department of Chemistry, Central College, Bangalore.

22. Saida Reddy, B. *Studies on the formation and biological activity of benzofuro (3, 2-d) pyrimidines.* Osmania.

23. Satyanarayana, N. *Investigations on the reactivities of organo-cobalt reagents generated utilizing the $CoCl_2$ $NaBH_4$ system.* Hyderabad. Dr. M. Periaswamy, School of Chemistry, University of Hyderabad, Hyderabad.

24. Satyanarayana Reddy, M. *Synthesis of some substituted chromones and chemical examination of Hardwickia binata of medicinal interest.* Osmania.

25. Satyanarayana Reddy, T. *Oxidation of some organic compounds by chromic acid : A kinetic study.* Osmania.

26. Sharma, N. Ramachandra. *Studies on the microbial transformation of alkaloids—stychnine and 2 nitro strychnine.* CUST. Dr. P. Madhavan Pillai, Prof., Department of Applied Chemistry, Cochin University of Science and Technology, Cochin.

27. Singh, Jyoti. *Recoil behaviour of manganese—56 atoms produced under (n, y) process in some permanganates.* BHU. Dr. S.P. Mishra, Reader, Department of Chemistry, Banaras Hindu University, Varanasi.

28. Srinivas Rao, K. *Angular triquinanes studies in natural product synthesis.* Hyderabad. Prof. G. Mehta, School of Chemistry, University of Hyderabad, Hyderabad.

29. Sud, Anila. *Methods for organic functional group analysis and some of their commercial applications.* HP.

30. Tikdari, Ahmad Momeni. *Studies in heterocycles using binucleophiles as synthons.* BHU. Dr. A.K. Mukerjee, Reader, Department of Chemistry, Banaras Hindu University, Varanasi.

31. Tiwari, Shashi. *Studies in the synthesis of compounds of medicinal analytical importance.* Awadhesh. Dr. S.K. Latta, Prof., Department of Chemistry, Government Science College, Gwalior.

32. Tiwari, Shashi Kant. *Kinetics and mechanism of hydrogen peroxide decomposition catalysed by metal ions adsorbed on alumina.* BHU. Dr. R.N. Singh, Department of Chemistry, Banaras Hindu University, Varanasi.

33. Tripathi, Yogesh Chandra. *Chemistry of medicinal plants.* BHU. Dr. V.B. Pandey, Department of Medicinal Chemistry, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

34. Uma Rani, R. Applicability of linear free energy relationship to substituted 2-phenylthiazolidines. Anna.

35. Upadhyaya, Anil Kumar. *Syntheses and reactions of 2-azetidinones.* BHU. Prof. K.N. Mehrotra, Department of Chemistry, Banaras Hindu University, Varanasi.

36. Varman, Rajiv Kumar. *The effect of application of N.P.K. on the uptake of nutrients of irrigated wheat in the soils of Banasagar command area.* Awadhesh. Dr. L.K. Thethwar, Prof., Department of Chemistry, Model Science College, Bilaspur.

Earth Sciences

1. Gupta, Anil Kumar. *Neogene deep water benthic foraminifera from the Northern Indian Ocean (DSOP LEG 22).* BHU. Prof. M.S. Srinivasan, Department of Geology, Banaras Hindu University, Varanasi.

2. Kesava Rao, Angara Venkata Raghavendra. *Some agroclimatic and hydrologic studies of Karnataka.* Andhra.

3. Krishna Mohan, T.R. *Study of the underlying dynamics of complex atmospheric and biological systems : Search for an attractor.* JNU. Prof. J. Subba Rao, School of Environmental Sciences, Jawaharlal Nehru University, New Delhi.

4. Muralidhar, Merugu. *Geological and hydrogeological studies in parts of Medak and Ranga Reddy Districts, A.P.* Osmania.

5. Rajendran, C.P. *Systematic stratigraphic study of cenozoic sediments of Kerala with special reference to Warkalli and Quilon formations.* Cochin. Dr. K. Soman, Scientist in Charge, Geosciences Division, Centre for Earth Science Studies, Trivandrum.

6. Ray, Abhinaba. *Structure, metamorphism and mineralization in part of the Hutti—Maski schist belt, Karnataka, India.* Calcutta.

7. Sharma, Girish Kumar. *Study of late cenozoic radiolaria of Neill Islands, Andaman Sea.* Delhi.

8. Singh, Shailendra Kumar. *Nature of chemical and sediment load in the Ganges River between Sone and Kosi.* JNU. Prof. V. Subramanian, School of Environmental Sciences, Jawaharlal Nehru University, New Delhi.

9. Sinha, Lokesh Kumar. *Structure and tectonics of a part of Mussoorie synform around Satengal, District Tehril Garhwal, U.P.* BHU. Dr. H.B. Srivastava, Department of Geology, Banaras Hindu University, Varanasi.

10. Srivastava, Rajesh Kumar. *Geochemical studies and evolution of alkaline carbonatitic complex of Ambadungar, District Baroda, Gujarat.* BHU. Dr. S.G. Karkare, Reader, Department of Geology, Banaras Hindu University, Varanasi.

11. Venkata Reddy, Singiresu. *Genesis of bauxite from Richughutu area, Ranchi District, Bihar, India with particular reference to mineralogy.* Andhra.

Engineering & Technology

1. Jha, Mithilesh Kumar. *Adaptations of successful offshore drilling and production practices to Indian offshore conditions : Present and future application.* ISM. Prof. S. Srinivasan, Department of Petroleum Engineering, Indian School of Mines, Dhanbad.

2. Mazumdar, Arun Kumar. *Fundamental studies on direct reduction of iron ore by non-coking coal and charcoal.* ISM. Dr. T. Sharma and Dr. G.V. Reddy, Asstt. Prof., Department of Fuel and Mineral Engineering, Indian School of Mines, Dhanbad.

3. Ncoc, Nguyen Van. *Studies on the recovery af copper and zinc from an off-grade and complex chalcopyrite concentrate.* BHU. Prof. P.M. Prasad, Department of Metallurgy, Institute of Technology, Banaras Hindu University, Varanasi.

4. Sankaranarayanan, N. *Some studies on the vibrations of laminated conical shells of variable thickness.* Anna.

5. Udayakumar, K. *Characterization and development of a new system model for edurance estimation of epoxy resin components under aggrevated service conditions.* Anna.

6. Venugopal, K. *System study for large scale water resources planning : An overview with special reference to Narmada Sagar Complex.* Anna.

7. Virmani, Rajesh Kumar. *Development of water-based workover/completion fluids using polymers for sand stone formations.* ISM. Dr. S.N. Pandey, Asstt. Prof. Department of Petroleum Engineering, Indian School of Mines, Dhanbad.

GOVERNMENT OF INDIA

Ministry of Human Resource Development

(DEPARTMENT OF EDUCATION)

JAWAHARLAL NEHRU MEMORIAL TRUST (U.K.) SCHOLARSHIPS 1989-90

Applications are invited on plain paper from Indian nationals for the award of two scholarships offered by the Jawaharlal Nehru Memorial Trust (U.K.) for advanced study/research in any of the following subject fields :

1. **Bio-Technology** 2. Mass Communication 3. **Computer Science** 4. Micro Electronics 5. Economics.

Tenure : The Scholarships are tenable for two years and may be extended by a year where necessary.

Value (Subject to Revision) : (i) A monthly stipend (currently £.402) for subsistance and personal expenses (including daily travel). (ii) Additional allowances for books (£.130), Clothing (£.141), Arrival (£.130) and Departure expenses (£.145). (iii) Reimbursement of approved study, travel and project cost. (These will be paid directly to the training institution). (iv) **There is no provision for dependants.** The value of the award is adjusted annually for inflation.

Passage Cost : Cost of passage from India to U.K. and back will be provided by the Government of India.

Minimum Qualifications : (i) Uniformly brilliant academic record, preferably Ph.D. degree, intending to do Doctoral or Post-Doctoral studies in the subject related to the field chosen, or published work of equivalent merit. Those having Master's degree should have two years experience of Research/Teaching higher classes. (ii) Candidates must produce evidence of capacity for intensive scientific investigation/research/specialised work. (iii) Only those candidates should apply who have already secured admission in some British Universities. They should produce documentary evidence in this behalf.

Age : Not more than 30 years of age as on 1.10.1989 (relaxable by two years in the case of Scheduled Caste/Scheduled Tribe candidates).

Marital Status : The scheme is meant for unmarried/single candidates.

Last Date : Application on good plain paper in the prescribed format together with the relevant documents should reach the Assistant Educational Advisor, Department of Education, External Scholarship Division, E.S. 4 Section, Room No. 517 'B' Wing, Shastri Bhavan, New Delhi latest by the **31st January, 1989.**

Note : 1. Candidates who have already been abroad for study/research either on a scholarship or on their own, are eligible to apply only if they have been in India, atleast for three consecutive years affer their return from abroad. Applications of the candidates who are abroad will not be considered. 2. Where grades are mentioned, the candidates must indicate exact percentage of marks, failing which it would not be possible to entertain their applications. 3. Candidates should have sufficient knowledge of donor country i.e. U.K. as well as of India. 4. Employed candidates must send their applications through thair employers with "NO OBJECTION CERTIFICATE" in time failing which their applications will be considered provisionally and they shall not be interviewed unlees the same is produced at the time of interview. 5. Applications in the subject fields other than those specified in the advertisement will not be considered. 6. Candidates who do not possess the requisite qualifications need not apply. 7. Applications sent in advance must be accompained with the attested copies of the certificates, certificate of age, marks sheets of the qualifying examinations and of all degrees/diplomas/certificates including Postal Order for appropriate value i.e. Rs. 5/- for General candidates and Rs. 1.25 for SC/ST candidates purchased after the date of advertisement of the scheme. 8. Equivalent foreign degrees are also acceptable in all the subject fields. 9. Papers/Books/Articles which have already been published may only be indicated in the application form. **The material which has not been published, need not be mentioned.** 10. Whatever experience etc. is mentioned in the application form has to be supported with documentary evidence. 11. Applications of the candidates belonging to All India Services, will be entertained only when received through their Cadre Controlling Ministries. Advance copies received from them will not be entertained.

Note : Before filling up the application form, candidates are advised to go through the instructions carefully.

PROFORMA FOR APPLICATION

1. Name of the Scholarship :
   Scheme : JAWAHARLAL NEHRU MEMORIAL TRUST :
   (U.K.) SCHOLARSHIPS 1989-90 :
2. (a) Subject
   (b) Sub-subject :
3. Name of the candidate Shri/Kum. (in block letters), with full mailing address. :
4. Date of birth and the State to which the candidate belongs :
5. Whether a member of SC/ST or a tribal or aboriginal community, if so give full particulars (Enclose certificate duly signed by 1st Class Magistrate). :

Recent passport size
photograph duly signed
in block capitals to
be pasted here. Without
photograph application
will be considered
incomplete

6. Academic record starting from High School/Higher Secondary (Attested/Photostat copies of Certificates to be attached).

Name of the University/Board/Institutions	Examinations Passed	Year of Passing	Division/Class with Position; if any*	% age of marks obtained and position, if any.	Subjects taken.

* (in case no division/class is awarded and only grading is done the conversion formula adopted may be mentioned).

7. Details of Professional specially teaching higher classes/research experience, specifying the period and number of papers published, previous employment if any, with documentary evidence showing specific dates.
8. Nature of the present employment with date of appointment, designation and the name & address of the employer.
9. Names, designations and addresses of three referees who are familiar with the work of the scholar. N.B. Candidates called for interview will have to bring with them comments of three referees in original.
10. Have you been abroad ? If so, give full particular of the country and the period specifying the dates and year of return to India.
11. Proposed Programme of Study/Research/Training, specifying:—(Please furnish a write-up of about three hundred words), (i) the work at present engaged in; (ii) nature and programme of study/research training desired; (iii) future plans/prospects after the proposed studies/research/training, and (iv) how are these related to the technical or economic development of India.
12. Name of the University in U.K. in which admission has been secured with documentary evidence.
13. Crossed Postal Order of Rs. 5/- (Rs. 1.25 in case of SC/ST candidates) payable to the Secretary, Ministry of Human Resource Development (Department of Education), New Delhi may be attached with the form.
14. Whether you have already appeared for interview under this scheme during last three years. If so, give details indicate subject and year when you appeared for interview.

Subject	Subject	Subject
Year	Year	Year.

Place ____________________

Date ____________________ (SIGNATURE OF THE CANDIDATE)

Note : Employed persons must send their applications fully sponsored by the employers. However, advance applications if they are complete in all respects (Photo, IPO and copies of the certificates) will be considered provisionally subject to the stipulation that applications through proper channel should reach the Section Officer, E.S. 4 Section not later than 10 days after the closing date for receiving applications.

davp 88/670

RAYAT SHIKSHAN SANSTHA,

SATARA (Maharashtra)

WANTED

Applications in the prescribed forms are invited for the post of a 'Principal' for the Arts, Science and/or Commerce faculty College conducted by Rayat Shikshan Sanstha.

Minimum Qualifications : Qualifications, Pay Scale, experience and service conditions are as per rules of the Shivaji University & State Government.

If found suitable, the candidate belonging to Reserved category will be given preference. Initially the person selected shall be appointed on no-grant College in Shivaji University area, however, he will be transferable to any College of the Sanstha.

For the form of application, please, apply by sending a self addressed envelope of 25 cm x 10 cm size and a crossed postal order of Rs. 15/- drawn in favour of Secretary, Rayat Shikshan Sanstha, Satara.

Applications should reach the undersigned on or before **10th February 1989**. This advertisement is in modification of the previous advertisement of the Sanstha.

Secretary,
RAYAT SHIKSHAN SANSTHA, SATARA
(Maharashtra)

CLASSIFIED ADVERTISEMENTS

ALL INDIA INSTITUTE OF MEDICAL SCIENCES

ANSARI NAGAR, NEW DELHI-110 029

Advertisement No. 7/88-ESTT. I

Applications will be received by the Director, All India Institute of Medical Sciences, Ansari Nagar, New Delhi-110029 from Indian citizens upto the 15th February, 1989 on the prescribed forms available on request for the following temporary posts :

1. **Professors : Nine :** One each for (1) Anaesthesiology (2) Forensic Medicine (3) Otorhinolaryngology (4) Radiodiagnosis (5) Pharmacology (6) Laboratory Medicine (7) Cytopathology (8) Genetics; and (9) Histocytochemistry.

Pay Scales : Rs. 2500-100-3200 (unrevised) inclusive of NPA for medically qualified candidates.

(ii) Rs. 1700-75-2525 (unrevised) for non-medical candidates.

Note : (1) For the posts of Professor of Pharmacology, Laboratory Medicine, Genetics and Histocytochemistry both medical and non-medical candidates will be considered.

(2) The post of Professor of Radiodiagnosis is for Cardiothoracic Centre at the AIIMS.

(3) The post of Professor of Cytopathology is for Institute Rotary Cancer Hospital at the AIIMS.

(4) The posts of Professor of Genetics and Histocytochemistry are for the department of Anatomy at the AIIMS.

Academic Qualifications (for Medical Disciplines)

1. A medical qualification included in Schedule I and II or Part II of the third schedule of the Indian Medical Council Act of 1956 (candidates possessing the qualifications included in Part II of the third schedule should also fulfil the conditions specified in Section 13(3) of the Act).

2. A postgraduate qualification e.g. M.D./M.S. or a recognised qualification equivalent thereto in the respective discipline/subject.

Experience

Twelve years teaching and/or research experience in a recognised institution in the subject of speciality after obtaining the qualifying degree of M.D./M.S. or qualifications recognised equivalent thereto.

Note : For the post of Professor of Laboratory Medicine the postgraduate qualification should be M.D./Ph.D in Pathology or Microbiology or Biochemistry.

Academic Qualifications (for Non-Medical Disciplines)

1. Postgraduate qualification e.g. Master's degree in the discipline/subject.

2. Doctorate degree of a recognised University.

Experience

Ten years teaching and/or research experience in the discipline/subject concerned after obtaining the doctorate degree.

Note : 1. For the post of Professor of Genetics, the non-medical candidates should possess Master's degree in Genetics or any life sciences.

2. For the post of Professor of Histocytochemistry, the non-medical candidates should possess Master's degree in Histocytochemistry or any life sciences.

3. For the post of Professor of Pharmacology, the non-medical candidates should possess Master's degree in Pharmacology.

4. For the post of Professor of Laboratory Medicine, the non-medical candidates should possess Master's degree in Pathology, or Microbiology or Biochemistry/Chemistry.

2. **Senior Administrative Officer : One**

Pay Scale : Rs. 3000-4500

Essential Qualifications

1. A graduate from a recognised University.

2. Twelve years of experience in administrative capacity as a Group 'B' Officer as Section Officer or its equivalent in the Central Government or a recognised medical institution of higher studies.

Desirable

1. Postgraduate degree in Arts, Science, Commerce.

2. Working knowlegde of Central Government Administrative rules and regulations.

3. **Chief Technician Tutor : One (For Orthoptic & Pleoptic Laboratory)**

Pay Scale : Rs. 2200-4000

Essential Qualification

B.Sc. (Hons) in Ophthalmic Techniques with 10 years experience in Ophthalmic Laboratories out of which at least 5 years should be in Orthoptics/Pleoptics.

OR

Matric with Diploma in Orthoptics/Pleoptics with 15 years experience in Orthoptics and Pleoptic out of which at least 5 years should be in a supervisory capacity.

Desirable

Should have the knowledge of maintenance and handling of sophisticated Orthoptic, Pleoptic and Ophthalmic equipments.

N.B. : 1. The posts of Sr. Administrative Officer and Chief Technician Tutor are for Dr. R.P. Centre at the AIIMS.

2. All posts carry usual allowances as admissible to Central Government servants of similar status stationed at Delhi/New Delhi. The pay scales of faculty posts are under revision in accordance with the recommendations of the 4th Pay Commission.

3. The effective date upto which the requisite experience must be completed will be 30th June, 1989.

4. The essential qualifications are relaxable at the discretion of the Selecting Authority.

Upper Age Limit

50 years for teaching posts and 30 years for non-teaching posts relaxable for Government servants, Scheduled Castes & Scheduled Tribes candidates or

otherwise exceptionally qualified candidates. Upper age limit upto 5 years is relaxable in the case of Scheduled Castes and Scheduled Tribes candidates.

Application form and other information can be obtained personally or on written request accompanied by a self addressed stamped (Rs. 2.00) envelope (23 x 8 cm) from the Office of Sr. Administrative Officer, Administrative Block, AIIMS, New Delhi.

DR. YASHWANT SINGH PARMAR UNIVERSITY OF HORTICULTURE AND FORESTRY

SOLAN

RECRUITMENT BRANCH

Advertisement No. 1/89

Applications are invited for the following posts on the prescribed form obtainable from the Office of the undersigned personally or by making written request accompanied by self-addressed envelope 23×10 cms bearing stamp of Rs. 6.00. The detailed instructions regarding qualifications and other conditions will be supplied alongwith the application form. The cost of application form for all posts is Rs. 10/- which should be sent through Indian Postal Order(s), payable to Comptroller, Dr. Yashwant Singh Parmar University of Horticulture and Forestry, Post Office Nauni, District Solan-173230 (Himachal Pradesh). The application form duly completed alongwith attested copies of testimonials and list of publications etc. should reach the Registrar, Dr. Yashwant Singh Parmar University of Horticulture and Forestry, Post Office Nauni, District Solan-173230 (Himachal Pradesh) by 13.2.1989. Request for supply of application form without requisite fee shall not be entertained.

Candidates applying from abroad may send their applications on plain paper giving full particulars of date of birth, examinations passed from High School onwards with division and percentage of marks obtained in various examinations, teaching/research/extension education experience with a list of publications, if any, so as to reach the undersigned by 28.2.1989.

I. Posts in the grade of Rs. 4500-7300 plus rent free unfurnished accommodation or in lieu thereof an allowance at the rate of 10% of pay

1. Dean, College of Horticulture—(1)
2. Dean, College of Forestry —(1)

II. Comptroller in the grade of Rs. 4500-7300—(1)

III. Professor of Floriculture and Landscaping in the grade of Rs. 4500-7300—(1)

IV. Posts in the grade of Rs. 3700-5700.

1. Associate Professor of Computer Science and Instrumentation—(1)
2. Associate Professor of Agricultural Engineering—(1)
3. Associate Professors/Scientists (Olericulture)—(2)
4. Associate Professor/Scientist (Entomology)—(1)
5. Scientist (Fruit Breeding)—(1)

V. Posts in the grade of Rs. 2200-4000

1. Assistant Professors/Assistant Scientists (Floriculture and Landscaping)—(3)
2. Assistant Professors/Assistant Scientists (Agro-forestry)—(3)
3. Assistant Professor/Assistant Scientists (Agricultural Extension)—(2)
4. Assistant Professor/Assistant Scientist (Medicinal Plants)—(1)
5. Assistant Scientists (Soil Science and Water Management)—(2)
6. Assistant Scientist (Apiculture)—(1)
7. Garden Superintendent—(1)

B.S. Nainta
REGISTRAR

PANJAB UNIVERSITY

Advertisement No. 1/89

Applications are invited for the following posts so as to reach the Registrar, Panjab University, Chandigarh, alongwith postal orders of Rs. 10/- by 6-2-89. Fourteen days extra time is permissible to persons who have to submit their applications from abroad.

1. **Readers : (Rs. 3700-125-4950-150-5700)** —

Mathematics	:	
Statistics	:	
Centre for Computer & Science Applications	:	4

Directorate of Correspondence Courses

History	—	1
Economics	—	1

2. **Lecturers : (Rs. 2200-75-2800-100-4000)**

Department of Library Science

Lecturer-cum-Assistant Librarian	—1
Lecturer	—1

Specialisation

Thorough knowledge of :

(i) Operations Research and Systems Analysis with applications to Libraries and Information Centres.

OR

(ii) Compute Languages/Systems and their application to Libraries and Information Centres.

3. **Lecturers : (Rs. 2200-75-2800-100-4000)**

Directorate of Correspondence Courses

Economics	—	1

Panjab University Evening College

Public Administration	—	1
Sanskrit	—	1
Economics	—	1
Hindi	—	1
(Temporary, but likely to be made permanent).		
Punjabi	—	1

4. **Research Associate :**

Centre for Advanced Study in Mathematics—1

Research Associateships are awarded in four slabs and carries emoluments at the following rates :

(i) 2200-100-2700
(ii) 2700-100-3200
(iii) 3200-100-3700
(iv) 3700-125-4325

(A Research Associate shall complete his tenure in the same slab in which he is placed at the time of selection).

Note

1. The Vice-Chancellor could place before the Selection Committee the names of suitable persons for its consideration alongwith the applications received in response to the advertisement.
2. It is not obligatory on the part of the University to call for interview every candidate who possesses the essential qualifications.

3. The number of vacancies may change.
4. The University may also prepare a panel in order of merit up to 3 persons which shall be valid for a period of six months.

Cyclostyled copies of detailed instructions for candidates, qualifications (essential) specialisations, various allocations and reservations concerning the various posts and other details are separately available with the application forms. These can be obtained from the Cashier, Panjab University, Chandigarh, personally on payment of Rs. 2/- or by making a Written request to the Assistant Registrar (Estt-I), Panjab University, Chandigarh, accompanied by self-addressed stamped (worth Rs. 5.40) envelope of 23×10 cms and postal order of Rs. 2/- drawn in favour of the Registrar, Panjab University, Chandigarh.

UNIVERSITY COLLEGE OF MEDICAL SCIENCES & GURU TEG BAHADUR HOSPITAL

SHAHDARA, DELHI-110032

Advertisement No. MC/Estab./2/11/89-1

APPLICATIONS on the prescribed form are invited for the following TEACHING and NON-TEACHING posts latest by **16th February, 1989.**

A. Teaching : (1) Professors : Rs. 4500-7300 : One each for the Deptts. of Medicine; Surgery: Dentistry and Psychiatry*. (2) **Readers :** Rs. 3700-5700 : One each for the Deptts. of Medicine; Surgery; Obst. & Gynae; Ophthalmology*; E.N.T.*; Anaesthesiology; Biochemistry (with medical qualifications); Physiology*; Biophysics in Physiology*; Microbiology and Pathology. (3) **Lecturers :** Rs. 2200-4000 : One each for the Deptts. of Psychiatry; E.N.T.*; Dermatology & S.T.B *; Anaesthesiology*; Orthopaedics (Tempy.); Radiology (Tempy.); Physiology*; Pathology; Pharmacology; and Microbiology. Two each for the Deptts. of Medicine (incl. one temp.) and Preventive & Social Medicine*. (4) **Demonstrators :** Rs. 650-960 (pre. rev.): one leave vacancy each for the Deptts. of Anatomy and Pharmacology. (5) **Senior Residents/Senior Domonstrators :** Rs. 3000-3200 : (all posts tempy. one 3 yr. tenure Residency Scheme) **One** each for the Deptts. of Anatomy; Biochemistry ; Physiology ; Pharmacology ; Forensic Medicine; Psychiatry; Dema. & STD; Dentistry; ENT; Radiology; Orthopaedics*: **Two** each for the Deptts. of Microbiology; P.S.M.; Anaesthesiology and Ophthalmology : **Three** for Pathology Deptt. and **Four** each for the Deptts. of Medicine and Surgery*.

E.Q. for **Professors; Readers and Lecturers** : P.G. in the subject concerned as included in the Schedules of Medical Council of India Act, 1956/Ordinance XXIV of the University of Delhi; For **Demonstrators :** MBBS/M.Sc. : For **Sr. Resident/Sr. Demonstrator :** P. G. degree or diploma in the subject after basic medical qualification.

Experience required : Professors—5 yrs. as Reader/Assoc. Prof.; **Readers**—3 yrs. as Lecturer/Asstt. Prof.; **Lecturer**—3 yrs. as Demon./tutor/ Registrar/Resident out of which one yr. after P.G.

B. Non-Teaching : (1) **Programmer-cum-Statiscian** (1 post) for Computer Cell; Rs. 700-1600 (pre-Rev.) **E.Q. :** (a) A second class Master's degree in Maths. or Statistics or Biometry; (b) (i) At least two years' exp. in Computer Programming at a recognized institution (ii) Good knowd. of an assembly language as well as FORTRAN.

(2) **Console Operator** (2 posts) for Computer Cell; Rs. 1640-2900; **EQ :** At least IInd class (not less than 50% marks) Master's degree in Maths./ Statistics/Biometry/Operations Research/ Physics. OR At least II Class (not less than 50% marks) Bachelor's degree in Engineering. (ii) Familiarity with P.C. Operation.

(3) **Technical Supervisor (Veterinary)** (1 Post) for Central Animal House; Rs. 1640-2900; **EQ :** A graduate degree in Veterinary Science or Animal Husbandry from recognized Univ. with two yrs. exp. of breeding and care of lab. animals.

(4) **Artist** (1 post); Rs. 1400-2300; **EQ :** Diploma or certificate in Arts from a recognised institution. Experience of Scientifie Drawings. Knowledge of preparing graphs, histograms, maps, charts etc.

(5) **Artist Modeller** (1 post) Rs. 1400-2300; **EQ :** Matriculation or its equivalent from a recognised University/Board with diploma/certificate in the trade from a reconised institution and two yrs. exp. as an Artist and/or Modeller as the case may be.

(6) **Curator for Museum** (1 post); Rs. 1400-2300; **EQ :** B.Sc. with Soology/ Anatomy/Anthropology/Allied Sciences. Desirable : Allied Science and two yrs. exp. in the field.

(7) **Junior Technician (Electronics)** (1 post) for Central Workshop; Rs. 1400-2300; **EQ :** Certificate in special trades and at least 5 yrs. experience in a recognised institution.

P. S. M. Deptt. (1) Lady Medical Officer (2 posts) Rs. 700-1600 (pre-rev.) **EQ :** MBBS with M.D. (Obst. & Gynae)/ D.G.O. with experience. (2) Public Health Nurse (2 posts) Rs. 1400-2300; **EQ :** B. Sc. Nursing or 'A' Grade Nurse with Health Visitor training or 'A' Grade Nurse with Public Health Training.

(3) **Medical Social Worker** (1 post)* Rs. 1640-2900; **EQ :** (i) M.A. in Social Work (ii) at least two yrs. field exp. in Medical Social work.

(4) **Health Educator** (2 posts)* Rs. 1400-2300 : **EQ :** M.A. in Social Sciences with Diploma in Health Education; two yrs. exp. in field work.

(5) **Health Inspector :** (3 posts*) Rs. 1200-2040; **EQ :** Hr. Secondary or equivalent with successful completion of Sanitory Inspector Course (ii) Exp. of working in P.H.C.

Administration : (1) Publication and Information Officer (1 post) Rs. 700-1600 (pre-Rev.) **EQ :** A Bachelor Degree with diploma in Journalism and/or adequate experience of Journalism and Publications/Pablic Relations Work.

(2) **Personal Assistant** (1 Post) Rs. 1400-2600; **EQ :** Atleast Matriculation. Minimum speed 120 w.p.m. in shorthand and 40 w.p.m. in English typewriting.

(3) **Stenographer** (7 posts) (1 post each resd. for S.C., S.T. and Ex-serviceman) Rs. 1200-2040; Matriculation or equivalent qualification with proficiency in shorthand at a speed of not less than 80 w.p.m. and proficiency in typewriting at a speed of not less than 35 w.p.m.

(4) **Jr. Asstt.-cum-Typist** (5 posts) (1 post each resd. for S.C. and Ex-serviceman) Rs. 950-1500; EQ: Matriculation or equivalent qualification with minimum 35 w.p.m. in English typewriting.

*All those candidates who have applied for any of these posts in response to earlier advertisement of the College and for which selection has not so far been held, need not apply again. However, they may intimate the College if they still wish to be considered, in which case they may, if required update their Bio-data.

The prescribed application form can be obtained from the office of the University College of Medical Sciences & G.T.B. Hospital, Shahdara, Delhi-110032, personally or on written request alongwith a self-addressed envelope of size 28 cm x 13 cm with postage stamps worth Rs. 1.15. The Cost of the form for the teaching posts is Rs. 2/- which can be sent, if required by post, by Indian Postal Order drawn in favour of the Principal, University College of Medical Sciences & G.T.B. Hospital, Shahdara, Delhi-110032.

Residential accommodation within the Campus may be possible to a certain extent depending upon the availability of the House.

PRINCIPAL

INDIAN INSTITUTE OF SCIENCE

BANGALORE-560 012

REQUIRES

I. Purchase Officer (IA/308/58/88)

Qualification & Experience

Essential: Degree in Engg.—Mechanical/Electrical / Electronics with 5 years experience in the relevant area OR Graduate in Science / Arts/Commerce, with Diploma in Materials Management with 8 years experience in the relevant area.

Experience: In Supervisory position in any reputed research/teaching organisation in import of scientific equipments/spares/chemicals etc. from the International market.

Job Description: The selected person should independently organise and run the Purchase Unit under the overall supervision of the Senior Purchase Officer. The person should have sound knowledge of purchase procedures, Customs Act, Import Trade Control and Procedures of clearance of materials from Customs as also Insurance and allied work, Excise Duty and Sales Tax, etc.

II. **Scientific Officers:** (2 Posts) in the Department of Inorganic & Physical Chemistry (No. IA/308/1/89)

Qualifications & Experience

Essential: Post No. 1: (i) Ph.D. in Physics/Chemistry with atleast 2 years experience in X-ray Diffraction techniques and crystal structure analysis OR M.Sc. in Physics/Chemistry with minimum 4 years experience in X-ray Crystallography and research publications; (ii) Experience in operating X-ray diffraction equipment, including single crystal diffractometer.

Post No. 2: (i) Ph.D. in Chemistry with sound knowledge of Spectroscopic and Magnetic Resonance techniques; (ii) Experience in operating UV-visible, IR and NMR Spectrometers.

Emoluments (for all) : Rs. 3256/- p.m. in the scale Rs, 2200-4000.

Details and prescribed application forms can be obtained on request (separate for each post) accompanied by crossed IPO for Rs. 5/- drawn in favour of the Registrar, Indian Institute of Science (free for SC/ST on production of Caste/Tribe Certificate from a competent authority) alongwith a self-addressed, Rs. 5-40 stamped envelope of the size 28 x 18 cms. on or before **30th January, 1989.**

REGISTRAR

SARDAR PATEL UNIVERSITY

VALLABH VIDYANAGAR

NOTIFICATION NO. EST/4/1988-89

Applications are invited in the prescribed forms which can be had from the University Office on payment of Rs 5/- in cash or by Indian Postal Order for the following posts so as to reach the undersigned on or before **31-1-1989.**

Sr. No.	Name of the Posts	No. of Post/s	Reservation of Posts SC/ST/ SEBC	No. of times adver-tised for reserved post	Pay Scale
1.	Reader in Electronics (For P.G. Deptt. of Electronics)	1	—	—	3700-5700
2.	Reader in Hindi (Drama & Dramaturgy)	1	—	—	3700-5700
3.	Lecturer in Bio-chemistry	1	SC/ST	2	2200-4000
4.	Lecturer in Computer Science (2 posts for MCA Course)	4	SC/ST	2	2200-4000
5.	Lecturer in English	1	SC/ST	1	2200-4000
6.	Lecturer in Hindi	1	SC/ST	1	2200-4000
7.	Lecturer in Electronics	1	—	—	2200-4000
	Non Teaching Posts				
8.	Press Manager	1	—	—	2000-3500
9.	Machine Operator (For Computer Centre)	1	—	—	1400-2300
10.	Technician 'C' (Electronics)	1	—	—	1320-2040

All the posts except at Sr. No. 8 carry benefits of D.A., G.P.F., Gratuity and Pension as per University rules. Post at Sr. No. 8 carries benefits of D.A., P.F., and Gratuity as per Factory Act. Detailed qualifications will be supplied alongwith the prescribed application forms.

Only SC/ST SEBC candidates are eligible for making applications under the reserved category Candidates belonging to SC/ST SEBC castes should attach a certificate from the competent authority of the Gujarat State.

Niranjan Upadhyaya
I/c REGISTRAR

INSTITUTE OF CORRESPONDENCE EDUCATION

UNIVERSITY OF JAMMU

ADMISSION NOTICE

Application for admission to the B.Ed. Course (Session 1989-90) through Correspondence are invited on the prescribed form. The prescribed application form alongwith Prospectus containing full information regarding the course can be obtained on all working days on payment of Rs. 8/- at the counter or by remitting Rs. 10/- through Crossed Bank Draft/Postal Orders drawn in favour of the Director, Institute of Correspondence Education, payable at Jammu if required by post. Money Orders and Cheques will not be accepted.

The last date for receipt of application forms is 28th Feb., 1989.

Conditions of Eligibility

Admission to the Course is open to :

(a) In-service teachers who have at least three years teaching experience as a full time paid teacher in Government or private recognised schools /Defence personnel serving in Army Education Corps as Education instructor or Teacher.

(b) Have passed the Bachelor's Degree Examination (Arts, Science, Commerce or Agriculture (from the University of Jammu or an Examination from any other University recognised equivalent thereto.

Note :

1. The University of Jammu has not authorised any Educational organisation either registered or unregistered to make enrolment on behalf of the University for any course conducted by the Institute of Correspondence Education, University of Jammu, Jammu.

2. Candidates already undergoing any University Course are not eligible for admission to the Course.

3. The medium of instructions and examination is English only.

Dr. Santokh Ram
DIRECTOR

INDIAN SCHOOL OF MINES

DHANBAD-826004

No. 420006/88-Estt.

Dated : 24-12-1988

Indian School of Mines, Dhanbad, deemed to be a University under the UGC Act, invites applications for the following posts.

1. **System Engineer** : One post : (Scale : Rs. 3000-4500/)

Age : 40 years

Job Description : The System Engineer will be primarily responsible for maintenance of the mainframe Computer System (PRIME). He shall be placed at the Central Computer Centre of the School.

Qualifications : Higher academic qualifications in the field backed up with about 10 years experience in hardware engineering and computation with large computer systems.

2. **Campus Engineer** : One post (Scale : Rs. 3700-5000/-)

Age : 45 years

Job Description : The School has a 88-hectare campus with several institutional buildings, five student hostels and residenrial accommodation for about 600 families. The Campus Engineer will be responsible for the overall maintenance of buildings, public health services, electrical and Telecom installation as also various construction works of the School.

Qualifications : A degree or diploma in Civil/Electrical Engineering.

Experience : 10 years for degree holders/15 years for diploma holders, preferably in Campus maintenance of a large establishment.

Note : In case no suitable candidate is found for the post the same may be filled up at the level of Executive Engineer in the scale of pay Rs. 3000-5000/-.

3. **Assistant Engineer** : Two posts (Scale : 2200-4000/-)

Age : 35 years.

Qualifications : A Degree or Diploma in Electrical/Mechanical and Civil Engg.

Experience : 5 years for Degree holders and 10 years for Diploma holders in specific field of Electrical/Mechanical and relevant works related to Water Distribution in a composite campus.

4. **Engineering Assistant** : Three posts (Scale : 1640-2900)

Age : 30 years (Relaxable in case of experienced person)

For Activity Areas :—Civil Works
—Electrical/Water Distribution.
—Transport/Telecommunication.

Qualification and Experience

For Post I : Diploma in Civil Engg. with at least two years relevant work experience.

For Post II : Diploma in Civil/Electrical Engg. with at least two years experience in Water/Elect. distribution System.

For Post III : Diploma in Mech. Engg./Telecom Engg. and with at least two years relevant experience.

5. **Asstt. Registrar** : Four posts (Scale : 2200-4000)

Age : 35 years.

For Post I : The incumbent shall be incharge of the Director's Secretariat and shall be responsible for supervision of correspondence including filing for issuance of orders and other communication from for Director, for assisting the Director in following up cases for ensuring timely performance and execution ; and for rendering all other secretarial support to the Director.

Qualification & Experience

(a) Master's degree with high second class at Bachelor's level (Essential)

(b) At least three years in a supervisory capacity in a Secretariat of a large establishment (Essential).

(c) Passed at least Intermediate of the Company Secretaryship Examination (Desirable).

(d) Some experience in application of O & M techniques in Office Management (Desirable).

For Post II : The incumbent shall generally be required to assist the administration concerning various establishment and finance matters.

Qualification & Experience

(a) A good Master's degree in Arts/Science/Commerce / Administration, with second class at Bachelor's level (Essential).

(b) A degree in Law shall be treated as an additional qualification (Desirable).

(c) At least three years relevant experience in a supervisory capacity in Govt. Semi-Govt. or any other large establishment (Essential).

(d) Knowledge and experience of Govt. rules related to various establishment matters (Essential).

For Post III : The incumbent shall primarily be responsible for management of stores & materials (including accounting, control and administration).

Qualification & Experience

(a) Postgraduate Degree/Diploma in Materials Management with high Second Class degree at Bachelor's level

OR

Master's degree with three years relevant experience in a responsible supervisory capacity (Essential).

(b) Knowledge and experience of Stores Accounting & Management, settlement of claims and other related matters (Essential).

For Post IV : The incumbent shall primarily be responsible for various public relations activities including dealings with local organisations and media at various levels and publications of the School.

Qualification & Experience

(a) Master's degree in Arts/Science/Education / Journalism/Administration with high second class at Bachelor's level with diploma/certificates in the field of Public Relations (Essential).

(b) At least three years relevant experience in a supervisory capacity in Govt. Semi-Govt. preferably in an education or research institution (Essential).

(c) Good drafting ability in English and Hindi and knowledge/understanding of Govt. Rules (Desirable).

6. Senior Professional Assistant : Three posts

Scale : 2000-3500/- **Age :** 35 years

For activity areas : Public Relations, Stores and Purchase.

Job Description

For Post I : Compilation of press releases, ISM news etc. Collect information from deptts, compile advertisements; maintaining records of photographs of School events; films, cassettes etc.; Publication works (Printing Proof reading reading etc).

For Post II & III : To coordinate activities related to the management of dealing Stores & Purchases including dealing with matters of import of equipment etc., inventory records, distribution of materials etc.

Qualifications & Experience

For Post I : (a) Graduate, with a diploma in P.R./Journalism (Essential);

(b) At least three years experience in Journalism, Publicity and Public Relations Works (Essential);

(c) Experience in writing feature articles and editing (Desirable).

For Post II & III : (a) Graduate, with a diploma in Stores & Materials Management (Essential);

(b) At least three years experience in the relevant field of specialisation (Desirable).

7. Horticulturist : One post

(Scale : Rs. 1640-2900)

Age : 35 years.

Qualification & Experience :

(a) Diploma in Horticulture with at least three years experience OR B.Sc. (Ag. Sc.) with at least five years experience in maintenance of Lawns, gardens, playfields, etc. of a composite campus.

Further details and prescribed application form may be obtained from the Deputy Registrar (General), Indian School of Mines, Dhanbad-826004 by sending IPO/DD of Rs. 7/- drawn in favour of the Registrar, Indian School of Mines, Dhanbad and a self-addressed envelope of size 30 cm × 12 cm.

Application in the prescribed form, complete in all respects should reach the undersigned on or before **10th Feb., 1989.**

A. Sarkar
REGISTRAR (Actg.)

THE UNIVERSITY OF HYDERABAD

(A CENTRAL UNIVERSITY established in 1974 by an Act of Parliament)

Employment Notification No. Rectt/01/89

Dated : 02.1.1989

The University invites applications for the following positions in the School of Physics under the UGC Programme of Special Assistance.

1. **Lecturers :** 2 Posts in the scale of pay of Rs. 2200-4000 plus allowances—One in Experimental Laser Physics and one in Quantum field theory and Elementary particles.

2. **Technical Officer** (Computer Scientist), 1 Post in the scale of pay of Rs. 700-1600 (pre-revised) plus allowances.

3. **Research Associates :** 2 Posts—in any of the 4 salary slabs carrying minimum emoluments between Rs. 2200 & 3700 depending upon the suitability of the candidates.

The prescribed application together with details of the educational qualifications, experience etc., for the above posts can be had either in person from the Asst. Registrar (Rect), Administrative Building, University of Hyderabad, Gachibowli, Hyderabad-500 134 or by sending to him a self-addressed envelope of the size of 28 cm × 13 cm duly affixing postal stamps worth Rs. 2.00 and superscribing on the left corner of the envelope "REQUEST FOR APPLICATION FOR THE POST OF———in SPA/ PHYSICS"

Last date for receipt of filled in applications is **1-2-1989.**

P. Muralikrishna
ACTING REGISTRAR

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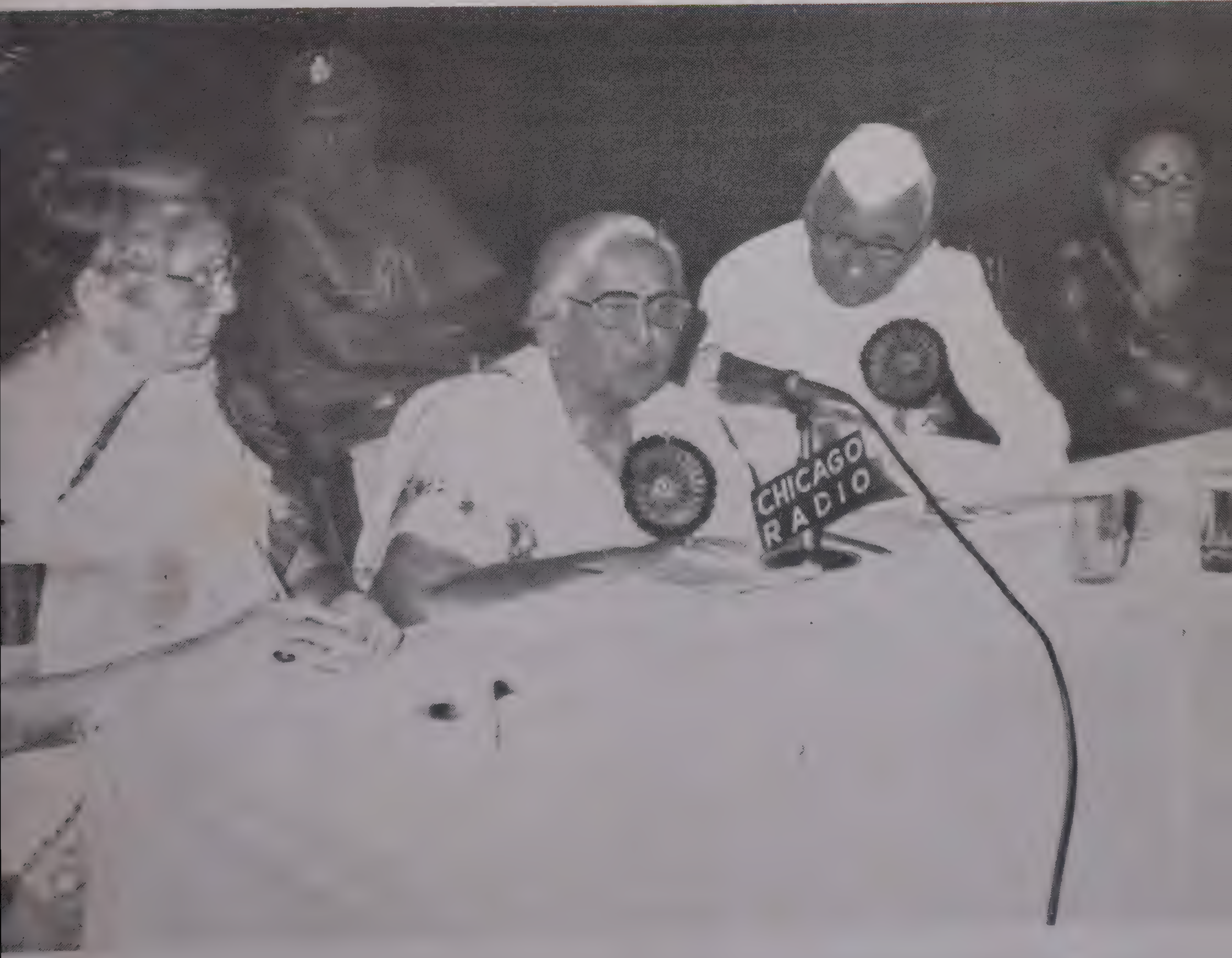
University News

ONDAY, JANUARY 23, 1989 Rs. 2.50



Mrs.) Madhuri Shah, President, IUACE, delivering the keynote address at the XXIII Annual Conference of the India niversities Association for Continuing Education. Seated on her left is Shri K. Brahmananda Reddy, Governor of Maharashtra and on her right Prof. (Smt.) Kamalini H. Bhansali, Vice-Chancellor of SNDT Women's University.

WILDLIFE INSTITUTE OF INDIA

DEHRA DUN-248 006

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Editor :
SUTINDER SINGH

T R.I., MYSORE

The Governance of Universities

Amrik Singh*

Two simultaneous and parallel processes have been at work in respect of the governance of universities. One is the increasing control assumed by the governments, both Central and State, over the working of the universities. The second is the growing incompetence and corruption in the performance of the governments themselves.

This has led to a curious situation. Universities have been increasingly deprived of powers in favour of the governments on the assumption that this would work better. But the latter are unable to perform significantly better because of the infirmities referred to above.

The occasion for these comments arises from the Orissa Universities Ordinance which was issued on November 14, 1988. This ordinance has sought to consolidate and amend the laws relating to universities in that state. An ordinance need not have been issued. For one thing, several of these provisions to which objection is being taken were already on the statute book through amendments carried out from time to time. For another, the State Assembly would have readily adopted the new law without the whole thing having to be embodied in an ordinance.

This is said not only because the government has the requisite majority in the Assembly but also because what is contained in the ordinance is, except for one important departure, to be found in university legislation as applicable to various other universities in the country. In other words, there is nothing very startling about what is contained in this Act. Only the whole thing has been consolidated at one place and, in its aggregate, looks objectionable from several points of view.

What are the features to which objection is being taken ? One is, that the Senate shall have only advisory functions. This is something for which the Orissa government cannot be faulted. On the contrary this is in keeping with the trends in university legislation all over the country. Both the Model Act Committee appointed by the UGC (1964) and the Gajendragadkar Committee (1971) recommended this pattern. Except for perhaps less than a dozen universities, which still retain the old pattern, almost every university has adopted this new model.

The second objection relates to the members of various bodies being nominated by the Chancellor/Vice-Chancellor and not elected. Here the pattern is somewhat more variegated. Elections are being discouraged in most universities, but membership on the basis of the ex-officio academic position that a teacher holds is the generally accepted pattern now. This pattern has not been totally abandoned in the Ordinance but it is not as pronounced as it is in several other universities.

Much more serious and indeed crippling is the third objection. The Ordinance vests the State government with exclusive powers to

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frame statutes. The generally accepted pattern is that statutes are framed by university bodies and are enforced only after the approval of the concerned government. In Central universities, for instance, admissions to various courses are governed by ordinances which are framed by the university bodies and come into force rightaway. Should the government, however, choose to overrule them, it can do so. Whatever has been done between the enforcement of the ordinance and its rejection however is regarded as legal and valid.

In one central university, because of pressure and the attempt of the Vice-Chancellor to please the students, the number of seats was doubled at one stroke and this in turn created difficulties. When the working of the Central universities was reviewed in 1983, the Committee did not view the misuse of this power favourably. It was, therefore, suggested that admissions be regulated through a statute rather than through an ordinance and in any case, in addition to university bodies, the government too should have the right to frame statutes. In other words, the role of the university bodies was not extinguished, only an enabling power was sought to be given to the government. In actual effect, none of these things has been done so far. Only a report was submitted and nothing more has happened since.

The Orissa Ordinance does two novel and significant things in this regard. One is to remove the category of ordinances altogether. Everything is to be done through statutes. And, this is the second thing to be noted, all statutes are to be framed by the State government. In its day to day working, therefore, Orissa universities would be bound, hand and foot by what the State government decides or directs to be done.

This statement needs to be elaborated. The prevalent pattern in almost every university is like this. There are three types of powers given to a university. Statutes can be framed after both the Executive Council and the Academic Council agree upon a formulation; that however is subject to the approval of the government. In the case of ordinances also, both the Councils have to agree. The decision so taken, though subject to the approval of the government, can be enforced rightaway even pending that approval.

What items are covered by statutes and what by ordinances differ from university to university. In the case of Orissa, the category of ordinances has been done away with altogether. All decision-making has been subsumed under the heading of statutes. As if that was not sweeping enough, the power of making statutes now vests only with the State government unlike other universities where subsequent government approval is to be sought and no more.

It is in this sense that every single decision of the university will now be subject to the control of the government. While attention is being concentrated on several other objectionable features, this is not only objectionable, it is dangerous as well as deadly. The whole thing is based on the belief that the government performs better than the university does. But does it ? It is time to ask this question.

It is possible to refer to many more such provisions, each one of which enables the government to determine what the university would do. And this takes us back to the starting point. The universities in India are almost totally divested of what used to be called their autonomy. When the State government takes over the functioning of universities through its various legislative steps (only some of them are listed here), what it amounts to this is that the university as a corporate body ceases to exist.

At the same time it does not become a department of the State either. Were it a department, questions relating to it would not be evaded in the Assembly on the ground that the university is an autonomous organisation. That, it need not be pointed out, is a legal fiction. On paper a university is an autonomous organisation and a body corporate. In practice, it functions in terms of what the university is told to do.

One would be prepared to accept even this highly adverse situation were it certain that the universities would perform better thereby. Their performance now depends on the choice of the Vice-Chancellor, the funding available and several other related things. Each one of them is determined by the twin factors, incompetence and corruption, referred to above. Therefore, the performance of the universities is no better than the performance of the government.

The universities too are to blame, it goes without saying. A very large number of them have been taking populist, even anti-academic, decisions and submitting to all kinds of pressures. Nor have they been free from the virus of corruption. This has, therefore, brought about a situation where the government thinks that things would improve when they take over greater powers. But the question to be asked is if the governments perform any better.

The right thing to do would be to maintain some kind of a balance between the role of the academics and that of the government. This is an ideal however, which hardly obtains anywhere in India. The Central universities however, function relatively better than State universities partly because funds are more easily available but also partly because this balance is maintained much better than in the case of the State universities. □

National Literacy Mission and the Universities

S. C. Bhatia*

Introduction

The Director General of the National Literacy Mission (NLM) has done well to articulate the official point of view on the University roles in the critical task of eradication of illiteracy (*University News*, Vol. XXVI, No. 52, December 26, 1988). The main thrust of the paper happens to be in two areas :

(i) "......it is a point for consideration as to whether the Centre-based programme and the individualized mass programme should be allowed to continue side by side or we should go in for substitution of the one by the other. Instances fo duplication by way of enrolment of the same learner by the Centre-based programme as well as by MPFL volunteer have been reported. Such duplication could be avoided if we go in for adoption of an integrated area-based approach in which either the Centre-based programme or the MPFL is allowed to operate. Keeping in view the right prospects of involvement of large number of students and teachers in the MPFL in the near future, it may be desirable to have a second look at the Centre-based programme being run by the universities and allow the same to be gradually replaced by the individualized mass programme. This is, however, a point for consideration." (p. 5).

(ii) "The Second important point for consideration is the linkage of basic literacy with post-literacy and Continuing Education in the University system. We have so far not established any effective linkage. We may, therefore, have to go in for institutionalizing the framework of Jana Shikshan Nilayam (NLM) in the university system in a big way." (p. 5).

Analysing the NLM Authority's Point of View

The redeeming feature of the paper should be seen in the limited use of the phrases "point for consideration" or "importatant point of consideration". It seems to me that before one considers the "point for consideration", one should seek to identify the core of the issue. Here are some questions :

(i) Should we see the core of the issue in the Adult Illiterate in his/her diverse socio-economic and cultural contexts or in those persons and institutions which would eradicate illiteracy ?

(ii) Should one learn from the psychology of learning in general and psychology of Adult learning in particular or should one learn from the success or failure of teachers (instructors or volunteers) in varying teaching situations ?

(iii) Should one be so completely overawed by the NLM Authority's resolve to achieve the unachievable and unrealistic targets to the extent that one begins to alter the very basic principles of a learning situation and in the process strip literacy of its essential value in the life of adult illiterate while equipping him/her with three R's ?

(iv) Should one begin to visualize a complete mobilization of university resources—manpower, revenue and technocratic—to what are currently perceived as limited goals of literacy or should one view the University as an articulater of the multiple needs of the people to have access to and participate in the planning and management of development resources within their own social and geographic contexts ?

There are many more questions which the NLM Authority should place on their agenda as "points for consideration" before in formulates a definitive view of human resources in the country. Let us consider only four points for the time being.

The critical question is not whether we should undertake the task of eradication of illiteracy through a Centre-based approach or through an individualized mass programme. In fact, in a large country like India, we should adopt multiple approaches for instructional management in our diverse socio-economic and geo-cultural situations. The critical question relates, however, to the relative strength and merits of group learning and individual learning. The adult illiterate in his/her poverty settings is still a part of the oppressed group, has not acquired the urban individualized aggression and drive to overcome structural and other constraints to development. His/her access to development (which includes literacy as well) is best ensured by participation in and growth of organized behaviour within the specific socio-economic and geo-cultural settings. The whole range of NGO work in this and other developing countries in small pockets points to the validity of this view. A group learning situation as part of the social strategy has been utilized in the school system though with substantial emphasis on socialization. While the school-focus is knowledge dominated, the Adult learner finds greater meaning and motivation in a group learning situation woven round his/her basic needs and critical aspirations. He/she finds strength in the commonality of needs and interests and readily responds to the group learning situation relevant to such aspects.

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Instead of recognizing deficiencies in androgogic research (wherein we have so far not reached the stage of creating a learning situation based on his/her complex yet interlinked network of development needs and aspirations), we have found a convenient scapegoat in labelling the adult learner as "lacking in motivation". We seem to be overawed with our own participation as functionaries in the Adult Education programme as a cadre of workers ranging from instructor/volunteer to the highest functionary in the system. The view of functionary as a "redeemer" of the situation is yet another instance of urban bias in development planning wherein the adult illiterate has just been reduced to the status of a "target". It would not be so amusing if one thought of functionaries as "targets" and adult illiterates as planners and managers of the Adult Education programme in their own socio-economic and geo-cultural settings. They would not probably need a NLM Authority; a Panchayat, a Mahila Mandal, or even a cooperative society would do. It is about time we see the Adult Education Centre and the Jana Shikshan Nilayam as a Mahila Mandal or a cooperative society—an organized manifestation of people's problems and development perceptions.

The individualized instructional programme has a limited value and draws limited enrolment. It would be very difficult to view it as a mass programme despite "circulars" and orders for what are being designated as "captive" and "disciplined" groups. We need to seriously consider if such "circulars" and suggestions to educational institutions for achieving targets are aimed at generating a "culture of compliance" through submission to the sins of statistics. It would not be altogether uncommon to hear in various parts of the country that the MPFL is not doing well though it continues to do well on paper. It is also not uncommon to hear in various parts of the country that a large percentage of instructors and volunteers in the Adult Education programme belong to lower socio-economic groups who expect some meaningful and tangible economic reward for participation in the development effort since development of the poor has invariably meant employment of educated human resources. It would be difficult to visualize a situation wherein the entire burden of idealism, sacrifice and selfless service to the nation is placed on the shoulders of the poor while the well-to-do continue to work for the so-called technocratic goals.

The group learning situation ensures accountability both from the side of the learners and from the functionaries. But it demands resources, larger resources, for an enriched learning situation. It would be sad to see computer literacy for sons and daughters of the rich and individualized literacy for the poor and the neglected. The sadder fact is that we continue to support more resources for those who already have much more and talk of resource constraints for the poor.

The critical point for consideration is not centre-based approach or individualized approach, but the substance in the learning situation and efficient management of available resources. The learning situation of the adult illiterates demands various kinds of literacy—legal literacy, science literacy, technical literacy (techniracy), work skills literacy, environmental literacy, health literacy, etc.—both through oral culture and written culture instrumentalities. The various kinds of literacy enumerated above would ultimately contribute to the growth of written culture to a point wherein oral culture—written culture network would acquire role-specific orientations in the lives of the people.

The NGO's and universities (in that order) have been voicing these views over the last twenty years or so. The NGO's have demonstrated the meaningfulness of this approach in group situations; the universities have been experimenting with these ideas in the last ten years. The acceptance of "extension" as the third yet equally important function of institutions of higher education has been operationalized in extension of multiple knowledge resources in response to the multiple educational needs of the community. It is believed that such a direction, even though slow-paced, would move to a situation wherein it would be possible to evolve integrated learning experiences matched with the development needs of a group of people. In fact, the university system has been working on the basic elements of a continuing education programme wherein literacy could find a meaningful, though not necessarily initial, place at some stage.

At the same time, university resources—manpower, revenue and technocratic—have also been utilized in the country's Adult Education Programme (its latest designation being NLM).

There have been as many problems in the university run Adult Education Centres as there have been with other institutions. Lack of timely grants, utter inflexibility in programme visualization and excessive emphasis on learner coverage could be listed as three major problems. The system of higher education has undertaken self-remedial processes by adopting an area development approach for its extension programmes and respect for multiple instructional management modalities.

The University system has also pleaded for a more substantial role in the National Literacy Mission based on a recognition of its technocratic roles. Two meetings held at the SNDT Women's University and the University of Delhi had called for inclusion of a chapter on "University Roles" in the National Literacy Mission document. The two meetings had articulated possible university roles in language choice in literacy, research in rapid literacy, training, use of mass media and planning of communication campaigns, training of manpower, social audit of Adult Education Programmes in different regions, etc. The two meetings had made these suggestions in the belief that its existing structures like the Departments of Adult, Continuing Education and Extension could provide the country some possible models of low-cost efforts. The NLM Authority has probably their own reasons in their slow and limited response.

The other major concern of the university system seems to point to the need for efficient management of available resources with a positive bias in favour of the grassroot situation. I have argued in favour of scaling down present targets in consonance with the sociology of literacy. It is not realistic to respond to 110 million individual adult illiterates with limited available resources. The literacy function in poor and large families is not an individual-specific, but a family-specific function; one literate person in a family as the unit of development rather than the individual. It would be much more meaningful to utilize the present resources for 22 million illiterates rather than 110 million. Till such time, more resources can be made available, the goal of one literate per family and one employed per family could be a more realistic goal in a span of ten years.

Similarly, planning of Adult Education programmes at village and block levels with greater initiative in the hands of the village and block level representatives, the use of local spoken language, local culture and development aspirations as content, and local discourse patterns as formats of presentation would rapidly place people in larger communication networks.

The grassroot level planning processes backed by a substantial share of available development resources including education and adult education are the best means to empower people. The centralized authority either in the nation's capital or in the State Capitals tend to result in distortion of priorities and leakage in resources meant for grassroot level. The basic strategy for educational management at village and block levels would still lie in a group of learner coming together to find common needs and interests. Let us remind ourselves of what Dr. B.R. Ambedkar visualized of education and development : "educate, organize and agitate". □

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Mathematics of Accountability

Man Mohan Lal*

Since the advent of the New Education Policy the word "accountability" has aroused a lot of controversy. University and College teachers smell a rat in it. No employee wants the rod of discipline over his head. What precisely the word "accountability" means is still a matter of interesting discussion. According to Webster's Seventh New Collegiate Dictionary 'Accountable' suggests "imminence of retribution for unfulfilled trust or violated obligation". Apparently this word has a negative tone. There remains a layman's view of the work of a university teacher—that he works far less than a non-academic employee. The view is so widespread that sometimes teachers themselves think in the same terms. A tree is known by its fruits. From the utilitarian viewpoint accountability is result oriented. If we regard education an industry, we shall have to think in terms of profitability. But teachers aren't prepared to be treated like workers in a factory and do not want to give up their trade union rights. This is the reason that the question of accountability has become a complicated issue.

Accountability has two aspects :

(A) Imperative

(B) Remunerative/Punitive

The imperative aspect determines duties and work. It lays down a course of action to a specific standard. Success or failure in reaching the specific standard must be rewarded/punished. Now the question is—Can the work of a teacher be measured ? The answer is apparent. There is uncertainty in his output. The tool and work relationship in the field of education are not specific. When we deal with inanimate things we can get the sum of four by adding two and two. This is fairly possible even while dealing with animals which have fixed instinctive behaviour. With human beings no rule can be absolute. But this does not mean that the work of a teacher is completely unaccountable. Let us see whether there can be any rational process of measuring the work and progress of a university teacher. It can be elaborated into four parts :

(A) The course of action, (B) The tools of measurement, (C) The monitoring authorities, and (D) Remuneration/Retribution.

(A) The Course of Action

A teacher in a university or a college is not simply a pedagogue. He is associated with higher pursuit of knowledge. His work is more that of a guide than mere classroom teaching. He has to create an atmosphere of learning in his college or university. Roughly the work of a teacher consists of following components—with weightage percentage as per Govt. Orders issued from time to time :

1.	Classroom teaching	—50%
2.	Research and creative writing	—40%
3.	Administrative work	—10%

1. Classroom Teaching

This component forms the most important part of teacher's work. It is seen that a teacher tends to accept minimum amount of teaching work. But it is his moral duty to concentrate upon classroom teaching as honestly as possible. This component is guided by the curricula of the subject he teaches. In order to specify the optimum level of skills to be achieved by his students, it is imperative that the syllabi is analysed properly. There should be a clear allocation of total periods of a session for coverage of the syllabi. Classroom teaching must be accompanied by personal contact between the teacher and the student. The number of students of a class must not be more than 40. Classroom teaching can be compared with agriculture. Just as we maintain distance between two plants in order to give a plant proper nourishment, we should keep the number of students in a class strictly limited. At the same time there should be a clear specification of the input i.e. the students admitted. As has already been pointed out human skills can't be measured or specified. Even the best tools of measurement may fail in this regard. However, entrance test of the input is necessary, which will help evaluate the progress made by a student after undergoing the instruction of the teacher.

2. Research and Creative Writing

Research work should go side by side with teaching. It is the duty of a university teacher to keep himself engaged in research and innovation in his

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discipline. But it should never be done at the cost of teaching. A teacher's stay at the college or the university is never more than four hours a day. This is an international custom. Perhaps behind this custom is the notion that minimum hours of formal work will facilitate him to spare adequate time to research and pursue higher learning. But this custom has been more misused than utilized. Teachers regard it as their right to bear minimum work load. Many a teacher scarcely engages himself in constant pursuit of knowledge. He tends to search out a parallel source of income which in turn affects his teaching skills badly. In a way a university teacher is paid for his leisure not in the form of promotion or awards but regularly in the form of monthly salary. Though it is very difficult to formalize research work, system and arrangements can be given formal shape. There should be proper supervision by the principal or the head of the department with regard to the progress of a teacher's research work. A teacher is expected to work regularly in the library, the laboratory or the field. His stay in the college must be six hours (including the library and field work).

3. Administrative Work

A teacher is simply a member of an integrated system of college or university administration. We can't expect too much of a principal or a Vice-Chancellor. It is the teachers who form the administrative machinery of a college or a university. It is therefore imperative that teachers should participate in the administration. They are expected to bear the responsibilities given to them from time to time by the head.

(B) Tools of Measurement

Perhaps here lies the crux of the problem. All the fuss rests on this point. Academic performance is beyond all measures. There always remains a kind of vagueness around it. It is something that we feel but fail to measure in terms of numbers. Madhuri R. Shah, former Chairperson of the University Grants Commission mentions three critical indicators regarding evaluation : the cognitive, the affective and the conative. Perhaps this classification is not very helpful. She gives all weightage to the classroom teaching and as such she sees the performance of a teacher in terms of "changes brought about in students". Such an evaluation will not cover the totality of his performance in a given period. Students are the object of the work of a teacher, but they can't be treated as the product of his work. A student's ability is the result of many things—aptitude, circumstances, environment, family background, individual efforts, performance in other subjects. Even pre-testing will not ensure proper evaluation of the effect of the teacher's work. However pre-testing and regular evaluation of students' achievement will help the teacher make necessary improvements in the quality of his work. In this connection we cannot do away with the importance of making daily reports as to the teacher's preparation, students' response and so forth. Every individual student's progress-record should be maintained in order to be aware of the effect produced by the classroom teaching. So far as the classroom teaching is concerned, the number of periods taken by a teacher is an objective proof of his work. It is not possible that a teacher attends the class and does not teach. The quality of teaching or the knowledge of subject matter is also automatically regulated by the students of a particular class. They can't let a teacher stand in the class if he is unprepared or fails to give them something valuable regarding the subject. Of late in many colleges and universities there is a tendency in teachers to avoid classroom teaching. If the number of periods becomes one of the criteria of promotion or seniority, teachers themselves would be keen on taking more and more periods with a competitive zeal. Such a competition will then have a bearing on their teaching performance.

With regard to measuring a teacher's research and academic pursuits in a given period there should be a formal system of work conducted by the institution itself. Institutions should take annual or biannual projects of research and individual teacher allotted a fixed and well-defined work so that his achievement can be evaluated concretely. Every college or university department must be financed by the UGC to publish its own research magazine in order to bring out annually or quarterly all relevant work conducted by its teachers.

(C) Monitoring Authorities

In universities the heads of different departments and in colleges the principals are given the authority to evaluate a teacher's work in each session. There is nothing wrong in it. But subjectivity should not be allowed to interfere. If the tools of measurement are not objective the reports of heads and principals tend to be meaningless. Therefore in order to ensure the impartiality of the monitoring authorities care should be taken to make their situation as mechanical as possible. For example, if classroom teaching is to be evaluated quantitatively nothing depends on the mercy of the principal. He has simply to maintain the record and make a report on the basis thereof. Something similar may be said regarding the evaluation of the teacher's academic pursuits. He will have a ready record of each teacher's academic achievement. Many an educationist has suggested that students are the best critics of their teachers. Their assessment is of great value. But there are many limitations regarding this. Students' opinion is always subjective. It can be valuable if it is used as a feedback. It may improve the quality of teaching but it can never be taken as sure and objective evaluation of a teacher.

Self evaluation is desirable but it has no formal value. It is something too good to be practical. Conscientious teachers are not many. However, if teachers assemble regularly presided over by the head or the principal, they can analyse many practical difficulties. They can discuss the innovations and new techniques of pedagogy. Their frequent interaction may help them improve [their teaching and research skills. Teachers should be invited to different local colleges to give lectures occasionally. This will refresh not only the teachers but also the students who get bored facing the same teacher daily. These visits should be recorded and added to the achievement of each teacher.

(D) Remuneration or Retribution

Needless to say, objective assessment is itself a reward or punishment. Individual promotions depend on these reports. At the same time a teacher's experience should be counted objectively on the basis of the number of periods he has taught so far. Such a binding will force the teacher to give first importance to teaching. In addition to these the teacher will command more and more respect of his students, which will give him a greater satisfaction than any remuneration whatsoever.

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LAST DATE

10th March 1989 with the prescribed fee, or from **11th to 25th March 1989** with a late fee of Rs. 50.00 more for Pantnagar Centre Only.

S.C. Malaviya
COORDINATOR (Admissions)

EMPOWERMENT OF WOMEN

Multidisciplinary Perspectives

The XXIII Annual Conference of Indian Universities Association for Continuing Education (IUACE) was held at the SNDT Women's University, Bombay from December 28 to 30, 1988. Co-sponsored by the Department of Continuing and Adult Education and Extension Work, SNDT Women's University, the Conference had as its theme "Empowerment of Women—Multidisciplinary Perspectives".

Shri K. Brahamananda Reddy, Governor of Maharashtra and Chancellor of the University, inaugurated the Conference. In his address Shri Reddy stressed a multifaceted approach to education for the emancipation of women from illiteracy, social prejudices and exploitation. He said that women's education must be re-oriented to include training in certain skills which would help women secure gainful employment and make them economically independent.

Dr. (Smt.) Madhuri Shah, President, IUACE, in her keynote address categorically stated the women did not need welfare, but rather developmental programmes in which they themselves would participate in policy making and programme implementation. She regretted that the Government was trying to centralize all such efforts instead of trusting women organisations at the grassroot level for greater participation. She said that flexibility of policies was important in keeping with changing needs, and the programmes should be relevant and practical. She stressed that the Government should support with 100% grants all developmental programmes for women.

Prof. (Smt.) Kamalini H. Bhansali, Vice-Chancellor, expressed her happiness that SNDT Women's University had always been a pioneering institution and that, a decade ago, had accepted the role of development. In this regard, she referred to various rural projects undertaken by the University, specially at Udwada in Gujarat and a Community Polytechnic in Nere. She also emphasised the need of Women's Universities redefining their roles particularly in the light of recent national documents. She also mentioned that it was necessary to take a second look at the concept of women's studies to change it into women's development effort. She hoped that the conference would be one more milestone in the life of SNDT University towards contributing in the process of women's development.

The 3-day Conference was divided in four Plenary Sessions and the topics discussed included (i) Economic Development; (ii) Agriculture, Rural Development; (iii) Participation in decision making processes and fighting invisibility; and (iv) Social Development.

The following recommendations were made at the plenary sessions :

(i) Schools, Women's Organisations, and Vocational Counsellors should encourage mechanical and technical skills amongst women.

(ii) There is need to evolve a national policy on HRD/EDP for women workers to enable them to increasingly utilize their right to enter employment.

(iii) Rural Housing Schemes must be planned in a manner that they provide employment to locally available skills and resources, rather than based on urban specification, and with women in mind.

(iv) The social forestry programme must be specifically the kind of plantation which is conducive to serving the requirement of fuel wood for domestic needs as against fuel wood and timber for commercial purposes.

(v) Need of giving greater support for exploitation of non-conventional sources of energy through social mobilization of efforts was stressed.

(vi) Women must come through the electoral process, not reservation, as part of their participation in the political process from the grassroot level upwards.

(vii) There was a need for a persistent campaign to remove the biased representation of women in the mass media, particularly as a sex object in numerous advertisements.

(viii) The "Targets" approach tends to initiate work orientation in health services and so the attention must shift to a better networking of professionals and paraprofessionals with accountability to the local community.

The Plenary Sessions were followed by Group Discussions. The participants were divided in 3 groups based on following topics :

Group I—Education and Training

Group II—Social Support Services and Voluntary Action.

Group III—Media and Communication and other issues

The Group I made the following suggestions :

- To recognize multiple role of women in society at all levels through education programmes.
- Creating women study departments and extension units at college/university level.
- Recognising women at all level instead of the lower class or people below poverty.

Group II through their interactive discussion came to the following conclusions :

- The employment for men and women should be given priority in our plan. 30% of the jobs should be reserved for women. Voluntary Action should emerge from the community and Voluntary Agencies should not be sponsored by the Government. There should be a networking among all such agencies for women upto community grassroots.
- Setting up of network of Socialised Food Centres and Community Kitchens for cheap eating outlets.

Group III on "Media and Communication" and other remaining issues debated the various viewpoints of the participants. The following important points emerged :

- Vigilance groups be created to keep a watch on the advertisements which are derogatory to women.
- Encourage and support women to be in decision making bodies of media and communication. Also encourage women to have access to the various communication media in order to voice their viewpoints affecting their lives.
- Judicial decisions be given only by women judges in cases where women's problems are dealt with.

The Conference was jointly directed by Prof. (Smt.) Kamalini Bhansali, Vice-Chancellor, SNDT Women's University and Dr. S.C. Bhatia, Hon. Secretary, IUACE.

Certificate Course in Food & Nutrition

Shri P. Indra Reddy, Minister for Education, Government of Andhra Pradesh, recently inaugurated a six month Certificate Course in Food & Nutrition offered by Andhra Pradesh Open University (APOU) in Telugu medium. The Education Minister also released the first set of course material on Food & Nutrition brought out by the University and presented one set of course material to one of the students of Food & Nutrition course.

Speaking on the occasion, Shri Indra Reddy called upon the University to conduct a survey and offer Vocational Courses useful to the community at large so that people in remote areas could be educated through distance education at less cost. He assured all possible help and cooperation from the government for the rapid expansion of courses and study centres of Andhra Pradesh Open University. Stating that the infrastructural facilities in the Professional colleges were put to a minimum use for four hours a day, he said the Government was contemplating to use facilities for about 20 hours a day by offering many courses and diplomas from the next academic year. The Minister suggested that A.P. Open University should also try to introduce many more short-term courses in areas like Secretarial Service, Personnel Management, Telugu Journalism, etc.

In his presidential address, Prof. C. Narayana Reddy, Vice-Chancellor, APOU, explained the importance and utility of the Certificate course in Food & Nutrition. He observed that the English version of Food & Nutrition Course is being offered by Indira Gandhi National Open University and the Telugu version is presently offered by Andhra Pradesh Open University for the benefit of Telugu speaking people of Andhra Pradesh and elsewhere.

The Vice-Chancellor said that the university was seriously considering to introduce basic courses like Health Education; Legal Education; Radio, TV & Refrigerator Repair; & B.Ed. Courses for in-service teachers.

Training Programme for Varsity Staff

An ambitious training programme has been initiated by the Jawaharlal Nehru University for its non-teaching employees for more effective administrative, academic and other services at the University. A work-study - cum - cadre Review Unit has been set up not only to study the work-load, work-methods and needs of work in each departments of the University but also to initiate training programmes for various categories of staff after identifying their training needs. The main purpose is to upgrade their knowledge, skills and aptitude for efficient performance of their existing tasks.

The first such teaching course was initiated a month ago to enable the junior level staff to improve their proficiency in English language, grammer, sentence structure and comprehension.

The University has also initiated the first coaching scheme for SC/ST employees who wish to appear in departmental promotion tests for Assistants and Senior Assistants. The programme which was inaugurated by the Vice-Chancellor, Prof. M.S. Agwani, has been well received and over twenty employees have joined this course.

To expose the employees to modern techniques and methods and to motivate them, the Work-Study Unit has plans to provide them inservice training as also to sponsor them to other institutions for training by professionally trained resource personnel, wherever necessary and feasible.

The Unit has already identified certain courses covering wide-spectrum of areas like behavioural skills, modern management techniques, innovative approaches to productivity improvement, administrative analysis, management of education system, managing examinations and management of messes in hostels and guest houses.

Teaching Methods in Ayurvedic Education

A regional seminar on Teaching Methods in Ayurvedic Education with special reference to Basic Principles was organised by Gujarat Ayurved University, Jamnagar on 17th & 18th December, 1988.

It was general consensus that there should be a reform in the Ayurvedic teaching methodology. The modern technology should be adopted for effective Ayurvedic teaching by maintaining the principles of Ayurveda as such. The use of computers and the other audio visual aids may be taken as a supportive measure for better understanding of the subject.

13 key persons, who were eminent teachers, educationists, clinicians and researchers in the field of Ayurveda, delivered their key-note lectures. 26 teachers from various Ayurvedic Colleges of Gujarat, Maharashtra and Rajasthan participated in the seminar. The postgraduate scholars, teachers of IPGT&R. and Gulab Kunverba Ayurved Mahavidyalaya also participated. There was a good interaction and exchange of views between the teachers of Ayurveda and the educationists belonging to the other disciplines also.

As a part of the Nehru Centenary Year, 6 such seminars will be arranged by the Ministry of Health, Govt. of India, in different parts of the country at regional level on different subjects of Ayurveda.

Incentives for Student Participants in NLM

The Joint Board of Vice-Chancellors of 11 Universities of Gujarat met on 1st January and accepted the proposal of Prof. Ram Lal Parikh, Vice-Chancellor, Gujarat Vidyapith to give 10 marks to each student for passing in any subject or for improving total to raise his/her percentage. Detailed regulations are being framed to make a thorough scrutiny of the claim of the student foolproof. All Vice-Chancellors have agreed to pass these regulations in the Academic Councils of their respective Universities, within a month. It has been decided to work out detailed area-plan for each of the 350 colleges and targets being fixed accordingly. At least 50% of the College students will be involved. This means 1,50,000 students will be recruited for this work and these teachers and students will be treated on duty.

These incentives have been worked out as a follow up to Prof. Parikh's suggestion to the Association of Indian Universities to recommend to all universities to actively involve teachers and students in the National Literacy Mission (NLM) for atleast 90 days mass campaign through home to home transmission of literacy kits. This, he thought, was imperative in view of the ensuing census that begins on 1st February, 1991. He felt atleast 20% rise in literacy rate could be secured if 50% of college and university students give 90 days in 1989 and same in 1990.

The incentives now formulated will be in recognition of the students' role in liberating 10 persons from scourge of illiteracy in two years.

Conference on C-Star Algebras

A three-week University Grants Commission (UGC) sponsored 'Instructional Conference on C-Star Algebras' was recently held at the School of Mathematics and Computer Information Sciences of the University of Hyderabad. The conference was attended by over 50 faculty members and research scholars from various universities and research institutions.

The conference was inaugurated by Prof. Vanaja Iyengar, former Vice-Chancellor, Sri Padmavati Mahila University, Tirupati. Prof. C. Radhakrishna Rao, National Professor and former Director of Indian Statistical Institute was the chief guest at the valedictory function. Prof. Bh. Krishnamurti, Vice-Chancellor, University of

Hyderabad presided over the conference. Prof. V. Kannan was the Director of the conference. The academic staff who lectured at the conference included faculty from Indian Statistical Institute, Bangalore, Delhi University, IIT, Madras, Gujarat University and University of Hyderabad.

Revised Pay Scales for UP Teachers

The Uttar Pradesh Chief Minister, Shri Naraian Datt Tiwari, has approved the revised pay scales for the whole time teachers of the State universities and degree colleges. The same will come into force with retrospective effect from January 1, 1986.

The new pay scales for the teachers will be on the pattern of the scheme of revised pay scales adopted by the Central Government. Under the scheme of revised pay scales determined for different categories of teachers, the scale of Lecturer will by Rs. 2,200-4,000; Lecturer (senior scale) Rs. 3,000-5,000; Lecturer (selection grade), Rs. 3,700-5,700; Reader Rs. 3,700-5,700, Professor Rs. 4,500-7,300, Principals, Rs. 3,700-5,700 and Rs. 4,500-7,300 and Vice-Chancellor Rs. 7,600. Demonstrators will be placed in the pay scale of Rs. 1,740 to 3,000.

These teachers will also get house rent allowance in their revised pay scales as permissible to the employees of the State Government.

BHU to Introduce New Management Courses

Under a major expansion programme several additional courses are being introduced in the Faculty of Management Studies of the Banaras Hindu University. The new courses include M.Phil, P.G. Diploma courses in financial management and industrial relations and the faculty would be one of the few in the country to introduce Bachelor of Business Administration (BBA) of three years (six semesters) full time course.

Three new additional centres of studies, viz., Centre for Entrepreneurial Development Centre of Rural Management and Afro-Asian Centre of University of Management are also proposed to be established.

96 cr for Youth Programmes

The Government is reported to have earmarked Rs. 96.11 crore for various youth programmes in the country under the Seventh Plan.

Of this amount the Nehru Yuva Kendra Sangathan has been sanctioned Rs. 35 crore to enable it to cover all the districts in the country by the end of the Plan period (1989-90). The Sangathan, which was made an autonomous organisation in 1987, covers 350 districts in the country and imparts leadership training and promotes youth clubs and cultural programmes.

The National Service Scheme (NSS) which at present has 8,80,000 volunteers and is expected to touch one million by the end of the Seventh Plan has been allotted Rs. 15 crore.

News from Agril. Varsities

Problems and Prospects of Kinnow Cultivation

The Punjab Agricultural University organised a two days Seminar on Problems and Prospects of Kinnow cultivation in the North-Western States of India at its Regional Fruit Research Station, Abohar, on January 6 and 7. The Citrus Show attracted as many as about one thousand citrus growers from all the States of the region. The largest number of entries being those of Kinnow. Even qualitywise there was acute competition, most of them showing very high quality. The local-Sangtara samples from Nurpur area of Himachal Pradesh, Sweet organge varieties like Jaffa, Mosambi and Blood Red from Rajasthan and Haryana, also stole the show.

Dr. Sukhdev Singh, Vice-Chancellor of the PAU who chaired the Planery Session of the Seminar stressed the need to develop technology to utilise Kinnow in processing which hitherto has been found unsuitable for processing. He called upon the participants to develop specific research programme to sustain Kinnow production over long periods to come. He urged the ICAR authorities to release more funds so that research at Abohar could be strengthened on all aspects of citrus growing. He assured the growers of the area that such Show and Seminar would be made a regular feature for years to come. He disclosed that a batch of PAU Scientists will soon be sent to Pakistan in order to see the performance of Kinnow in that country which would be beneficial to this region also, particularly in view of the fact that they have been able to keep the fruit on the tree in good condition upto April.

Dr. K.S. Gill, Director of Extension Education of the PAU, welcomed the scientists from ICAR, Haryana, J.K. and other Agricultural Universities of the region. He traced the history of Kinnow development and highlighted the desirable attributes like heavy yields and good quality of this variety. Dr. Gill advised the scientists to look into the problems in Kinnow like late maturity, high seed content, poor keeping quality, unsuitability to processing as well as decline at an early age. He outlined a strategy for sustained research to upkeep the progress made in Kinnow cultivation in the region.

Dr. H.C. Dass, Director, Central Citrus Research Centre, Nagpur, complimented the Kinnow growers of the region by describing the progress in this direction even more significant than Nagpur Sangtara growing in Maharashtra and Madhya Pradesh. He gave a detailed strategy of future research programme which he asserted should be taken up on a coordinated bases by all the States with the active involvement of the ICAR.

Embryo Transfer Technology

The Department of Animal Reproduction and Surgery of the Punjabrao Krishi Vidyapeeth conducted, in collaboration with the National Institute of Immunology, a technical session on Embryo Transfer Technology on 27-28 December, 1988. In the wake of the era of genetic engineering, an effort to make successful use of embryo transfer in cattle and buffaloes for maximum utilization of female germplasm was made by Punjabrao Krishi Vidyapeeth. Dr. S.M. Totey, a Scientist from National Institute of Immunitigy, was invited to discuss and demonstrate the intricacies of the technology.

Inaugurating the three-day technical session, Shri Raibhan Jadhao, Chairman of Marathwada Industrial Development Corporation, Aurangabad, appreciated the steps taken for the programme of embryo transfer technology and wished the project every success. Prof. H.B. Ulemale, Vice-Chancellor, Punjabrao Krishi Vidyapeeth, enlightened about advanced project being conducted in the University and lauded the steps taken for embryo transfer technology by Dr. M.S. Kadu, Head, Department of Animal Reproduction. During the practical work three cows were superovulated and their embryos were transferred in ten cows in which synchronisation of estrus was also done.

AIU News

Colourful Cultural Evening by University Youth

As a prelude to the National Youth Week Celebrations, the Association of Indian Universities (AIU), in collaboration with the Department of Youth Affairs & Sports, Govt. of India, organized a Colourful Cultural Evening on 7th January, 1989. About 160 student artists from different universities participated.

The programme comprised Folk and Classical Dances, Group Songs and other items drawn from different regions of the country. These included the gorgeous folk dances from Assam, Tamil Nadu, Madhya Pradesh and Haryana.

Shri M. Varadarajan, Secretary, Department of Youth Affairs & Sports, Govt. of India, was the Chief Guest. He eulogised the efforts of AIU in promoting cultural activities amongst youth. Professor S K. Agarwala, Secretary, AIU thanked the Department of Youth Affairs and Sports for extending maximum cooperation to make the AIU Cultural programmes a success.

Smt. P. Laxmi Shiv Shankar, wife of Shri P. Shiv Shankar, Union Minister, Ministry of Human Resource Development, Shri D.K. Manavalan, Jt. Secretary, Department of Youth Affairs & Sports, Shri P.K. Mishra, Director, Youth Affairs also graced the occasion.

The programme was presented again at the function for presentation of National Youth Awards, by the Prime Minister, Shri Rajiv Gandhi on January 10, 1989. Both the Prime Minister and the Minister for Youth Affairs and Sports, Smt. Margaret Alva, lauded AIU's endeavours in promoting youth and cultural activities to strengthen the National Integration.

A Fine Arts Youth Exhibition on the theme 'Youth and Peace' was also put up on this occasion. Ten universities' youth presented live demonstration.

AWARDS AND MEDALS

- The prestigious INSA-Albert Einstein professorship for 1989 has been awarded to Professor A.N. Mitra of the University of Delhi's Department of Physics.

- The Aryabhata medal for 1989 has been awarded to Professor P. N. Srivastava, Member, Planning Commission.

Academic Ethics and Scientific Values

Dr. A.S. Paintal, President, Society for Scientific Values recently wrote to Prof. Yash Pal, Chairman, University Grants Commission (UGC) delineating the important role that the UGC could play in the promotion of academic ethics and scientific values. Prof. Yash Pal has not only affirmed his support to the content and spirit of Dr. Paintal's letter in a communication addressed to the President of the Association of Indian Universities (AIU), he has also underlined the need to stress the ethics of an academic and researcher in the programmes of orientation courses being organised by the Academic Staff Colleges and in other programmes conducted by universities and research institutions. Both of these letters are being published in the hope that these will generate awareness of scientific values and ethical norms and promote their observance by the academics and researchers.

UNIVERSITY GRANTS COMMISSION
Yash Pal — Bahadurshah Zafar Marg
Chairman — New Delhi-110002

Dear President,

I am enclosing a letter I have received from Dr. A.S. Paintal, President of the Society for Scientific Values. I wholeheartedly support the content and spirit of this letter. There should be strongest possible censure of any practice involving plagiarism, fictitious data, unjustified claims or credit-seeking for something done by others. To the extent the academics enforce this, they will enhance their own self-respect, get respect from society at large, and be true to the vocation they have chosen. This particular aspect of the ethics of an academic and researcher should be underlined in the programmes of orientation courses being organised by the Academic Staff Colleges and in other programmes conducted by universities and research institutions.

With kind regards,

Yours sincerely,
Yash Pal

President,
Association of Indian Universities
16, Kotla Marg,
New Delhi

SOCIETY FOR SCIENTIFIC VALUES
Dr. A.S. Paintal — DST Centre for Visceral
President — Mechanisms, V.P. Chest
Institute, Delhi-110007

Dear Prof. Yash Pal,

I hope you are familiar with the objectives of this Society. We believe that unless scientists truly observe the ethical norms of their profession they can neither promote excellence nor earn the respect of the Society in which they function. We strive to create a situation where departing from integrity in observation and apportionment of credit, for example, can be strongly discouraged, where cooking up of data, engineering of results, or plagiarising may even lead to some penalty. However, it is important to create an awareness of scientific values among young scientists so that they can appreciate the far-reaching consequences of laxity or wilful violation of the basic conduct of a scientist. This is where, we believe that the University Grants Commission can play a very important role.

I appeal to you to circulate my letter to the universities and ask them to make its contents widely known. I understand you have a large number of Academic Staff Colleges for the benefit of young teachers. It would be worthwhile to request these colleges to make a special mention of the question of scientific values, which really affect all disciplines, and particularly to emphasise that during laboratory or field work in undergraduate and postgraduate classes, there would be insistence on the recording of correct data and on reporting of results as they are found to be in the experiments concerned. Teachers in the universities can find their own way of explaining scientific integrity, objectivity and analytical ability—and the general observance of values in science.

I shall be very grateful if you could send me a line in affirmation of your interest and action in this matter.

With regards,

Yours sincerely,
Dr. A.S. Paintal

Prof. Yash Pal
Chairman,
University Grants Commission,
Bahadurshah Zafar Marg,
New Delhi

Book Review

USEFUL GUIDELINES

D'Souza, Lena. Managing Staff Development in Educational Organisations : A Practical Guide. Bombay, SNDT Women's University, 1987. 24p.

Responding to the changing scenario of the educational system, the Education Management Series now being published by the Department of Education Management of SNDT Women's University of Bombay has, within a short span of time, already brought out two useful handbooks. The first one dealt with the topic "Managing Performance Appraisal in Educational Organisations".

The one in hand, the Second in the series, deals with the problem of managing staff development in educational organisations and pleads that it is the responsibility of the management to establish a policy for a structured and programmed staff development and training.

Lena D'Souza, Head of the Department of Education Management of the SNDT Women's University, has provided certain absolutely needed guidelines for evolving a policy of staff development vis-a-vis the development of the educational organisation to further job satisfaction and career prospects of the teacher—which, in turn, will meet the right of the students to be well-taught by trained, motivated and effective personnel.

The goal perceptions of staff development (SD), according to the author, should be based on an evaluation of the current situation and visualisation of changes intended to be brought about enabling an academic staff to critically view his teaching and also the system in which it takes place.

One useful function of the handbook is that it enumerates the objectives of staff development, both in individual and organisational terms, and deals with peripheral and integral approaches where peripheral approach is characterised by adhoc provision while the integral approach is an essential component of the organisation and its needs. The author herself prefers the integral approach.

Discussing the methods of staff development (SD) as suggested by Lyons and Grlatter, D'Souza argues that SD can take place only with an awareness of its need. Evaluation and appraisal of staff performance linked to training and development is suggested as the launching pad for the SD policy. She says that self-appraisal and appraisal by others help identification of individual needs for development, and, Departmental and general meetings are suggested as additional props to serve the purpose of the identification of institutional needs.

She highlights the necessity that performance appraisal has to be followed by an appropriate action plan leading to benefits in terms of knowledge, skill and attitudes of the staff.

Giving priority to inservice training as a course of action, the author advocates for a combination of focus, control, mode and location. For whom the training takes place, who decides the needs, form and degree of participation in the training, the nature of the training course in terms of duration and content and the place of the training activity form combination of focus, control, mode and location of the staff development programme.

Costs, obviously, are as important as the benefits of the course.

Issues concerning the management of SD policy are involved, according to the author, in the very formulation and implementation of the policy. And it also involves a continuous negotiation with the staff to reach an agreed framework for development and the decision making process with the development.

The author has favourable inclination towards McGregor's Theory Y regarding the assumptions of an Institution/Department towards their staff. Staff-propensity to work among the staff; self motivating trends among them; interrelation between commitment, naturalness of the pursuit of responsibility and inherent ability to solve problems are the assumptions pre-supposed by McGregor's Theory Y. The participatory attribute of SD is reinforced by these assumptions.

Another useful strategy, according to the author, is suggested by Elliot Kemp requiring a classfication of those inclined towards change in terms of their power to influence others with their expertise and their motivated concern for innovation-power and concern, in brief.

The handbook gives a diagram with a square in the four quadrants of which the staff are classified into those with high power and low concern; low power and high concern, low concern and low power and high power and high concern and enlargement of the circle of the last category of the staff is the most sought after goal of any SD.

The author refers to the model provided by Oldroyd, Smith and Lee for SD Policy for schools and emphasis the adoption of the model for achieving the goals of SD at collegiate level.

Investigation of current SD, establishment of SD Committees, job specifications by Heads of Departments, evaluation of staff-induction processes are some important strategies provided by the model.

She rightly points out to the priorities to be given to resources in terms of time, energy, commitment and expertise besides that of financial resource, and has provided a number of guidelines of practical utility to identify their availability.

Guidelines have been given in the handbook for evaluation of the effectiveness of the programmes also in terms of criteria of evaluation, indicators of achievement, assessment authority and communication of evaluation and dissemination of skills acquired in course of a SD Programme.

She has been able to identify issues waiting to be resolved like those of needs of SD, mechanism to know the needs, analysis of the current position, objectives of SD Policy and its clientele, evaluation mechanisms and linkages between curriculum and staff development.

It contains a valuable, though small, bibliography of books mostly written by British Educationists based on their studies emanating from their environment. The bibliography, thus sadly hints at the paucity of similar studies by Indian educationists in the educational environment obtaining in India.

For the use of the Organisations in SD Programme, the writer, in Appendix-I, has given a questionnaire and a grid to record the views of the respondent-organisation to equip it for self-evaluation. Appendix-II is on individual commitment for in-service training, and Appendix-III deals with the general outline of orientation or rather induction programme at the collegiate level for fresh entrants, to the academic staff of the College.

The book is a useful to all those in the field of education, maybe an individual or an Institution.

—V.C. Chavadi
Director, Academic Staff College, Karnatak University Dharwad

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UNIVERSITY OF DELHI

NOTICE

Ref : Advt. No. Estab. IV/118/88 dated 14th December, 1988 inviting applic ations for teaching positions in the University of Delhi.

It is regretted that an error has crept in the said advertisement in the matter of teaching positions in the Deptts. of Modern Indian Languages and Economics.

The correct position is as follows :

Deptt. of Modern Indian Languages

Reader (Tamil) —1 No. (Permanent)
Lecturer (Kannad)—1 No. (Temporary upto 12.1.1990)

Deptt. of Economics

Reader—3 Nos. (Permanent)
Lecturer—1 No. (Temporary upto 31.12.89)
Research Associate—1 No. (for five years maximum).

Other details about the above positions as given in the original advertisement remain unchanged.

In view of the rectification of the above discrepancy, the last date for receipt of applications for the above mentioned positions has been extended till **15th February, 1989.**

The last date for receipt of applications for remaining positions/posts invited vide the above advertisement remains unchanged i.e. **31st January, 1989.**

Delhi-110007
the 14th January, 1989

Madan Mohan
REGISTRAR

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertation as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

CURRENT DOCUMENTATION IN EDUCATION

A List of Select Articles Culled from Periodicals Received in the AIU Library during December, 1988

EDUCATIONAL PHILOSOPHY

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EDUCATIONAL PSYCHOLOGY

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Sundararajan, S. and others. Adjustment problems of professional and non-professional college students. *Prog. Edn.* 63(3), 1988, 56-9.

Uplaonkar, Ambarao T. Education and occupation aspirations of college students. *J. Hr. Edn.* (Delhi), 10(3), 1985, 195-200.

EDUCATIONAL SOCIOLOGY

Doust, Ali. Foreign students : Time for rethinking and a new strategy. *World Student News* 42(5-6), 1988, 4-8.

Haldane, John. Religion in education in defence of a tradition. *Oxford Rev. Edn.* (14(2), 1988, 227-37.

KSSE. Strangers in their own country. *World Student News* 42(5-6), 1988, 19.

Uplaonkar, Ambarao T. Protective discrimination and the equality of opportunity. *J. Hr. Edn.* (Delhi) 11(1&2), 1985-86, 117-26.

EDUCATIONAL POLICY & PLANNING

Balachander, K.K. New Education Policy : Progress painfully slow. *Aryan Heritage.* V(54), 1988, 10-12.

Joshi, Navin Chandra. Doing without degrees. *Yojana* 32(21), 1988, 13-14, 21.

EDUCATIONAL ADMINISTRATION

Birnbaum, Robert. Presidential searches and the discovery of organizational goals. *J. Hr. Edn.* (Ohio) 59(5), 1988, 489-509.

CURRICULUM

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TEACHERS & TEACHING

Maslen, Geoff. Researching the lost chord. *THES* (841), 1988, 8.

Orpen, Christopher. Evaluation and improvement of university teaching. *J. Hr. Edn.* (Delhi), 13(1-3), 1987-88, 47-62.

Singhal, Sushila. Effective teachers: How good is the student consensus? *J. Hr. Edn.* (Delhi), 13(1-3), 1987-88, 101-8.

EDUCATIONAL TECHNOLOGY

Headrick, R. Wayne and Fowler, George C. Structured programming techniques: A study of relative complexity. *Comput Edn.* 12(4), 1988, 539-44.

Mole, Richard. Computer programming for management students. *BJET* 19(3), 1988, 164-71.

Mudd, Samuel and Mcgrath, Kimberly. Correlates of the adoption of curriculum-integrated computing in higher education. *Computers & Edn.* 12(4), 1988, 457-463.

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Anand, H.R. Ten point scale of student evaluation. *J. Hr. Edn.* (Delhi), 11(1&2), 1985-86, 199-202.

Crosson, Frederick J. The role of the faculty in accreditation. *Academa* 74(4), 1988, 19-22.

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Reckase, Mark D and others. Building a unidimensional test using multidimensional items. *JEM* 25(3), 1988, 193-204.

Weinberg, Eugene D. Informal dialogue in the accrediting process. *Academe* 74(4), 1988, 29-32.

ECONOMICS OF EDUCATION

Alexander, Linda. Ticking off the clockwatchers. *THES* (839) 1988, 7.

Mehra, L.S. Financing of research in U.K. *J. Hr. Edn.* (Delhi), 11(1&2), 1985-86, 202-11.

O'neill, Peter. Students battle with gnomes. *THES* (839), 1988, 9.

Ortiz, Hector. Brains for sale. *World Student News* 42(5-6), 1988, 28.

VOCATIONAL EDUCATION

Edfelt, Ralph. U.S. Management education in comparative perspective. *Comp. Edn. Rev.* 32(3), 1988, 334-54.

ADULT EDUCATION

Genglin, Gu. Rural adult education. *New Directions Cont. Edn.* (37), 1988, 23-31.

Jennings, Zellynne. Belize's REAP programme. *Prospects* 18(1), 1988, 115-25.

Wanbing, Zhang and other. Special adult education. *New Directions Cont. Edn.* (37), 1988, 59-63.

DISTANCE EDUCATION

Dewal, Onkar Singh. Pedagogical issues in distance education. *Prospects* 18(1), 1988, 63-73.

Kaye, Anthony. Distance education: The state of the art. *Prospects* 18(1), 1988, 43-54.

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Sharma, R.A. and Yadav, Siya Ram. Cost and academic performance of correspondence education. *J. Hr. End.* 13(1-3), Delhi, 1987-88, 111-15.

COMPARATIVE EDUCATION AND COUNTRY STUDIES

Care, Claude. Educational reforms in France. *Intl. J. Ednl. Res.* 12(2), 1988, 123-26.

Mukherjee, B.C. The Vidyasagar University: Its objectives and character-1985-86. *J. Hr. Edn.* (Delhi) 13(1-3), 1987-88, 125-6.

RADICAL CHANGES in Australia: The new White Paper on higher education. *ABCD* (85), 1988, 2-9.

Selvaratnam, V. Universities in Malaysia. *J. Hr. Edn.* (Delhi), 11(1-2), 1985-86, 39-56.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

BIOLOGICAL SCIENCES

Anthropology

1. Khanna, Sunil Kumar. *Anthropometric and dermatoglyphic variation in occipito-atlantal fusion: A rare congenital anomaly.* Delhi.

Biology

1. Aradhana. *Effects of plant alkaloids and steroids on the mammary epithelium.* JNU. Prof. A. Ramesha Rao, School of Life Sciences, Jawaharlal Nehru University, New Delhi.

2. Jayaprakash Rao, I. *A study of the environmental biology of Netravathi river system.* Mangalore. Dr. M.N. Madhyastha, Prof. Department of Biosciences, Mangalore University, Mangalagangotri.

3. Mishra, Mahesh Prasad. *Structural evaluation of some forests of Shahdol region.* Awadhesh. Dr. V.S. Shai, Department of Environmental Biology, Awadhesh Pratap Singh Vishwavidyalaya, Rewa.

4. Nagendra Prasad, P. *Studies on some biological aspects of the mud crab, Scylla serrata (Forskal) of Karwar.* Karnatak. Dr. B. Neelakantan, Chairman, Department of P.G. Studies in Marine Biology, Karnatak University, Kodibag, Karwar.

5. Reddy, B.V.B. *DNA sequence data analysis: Some structural and biological implications.* Hyderabad. Prof. A.S. Kolaskar.

6. Singh, Serum Raghumani. *Studies on the air spora of Imphal.* Manipur. Dr. N. Irabanta Singh, Assoc. Prof., Department of Life Sciences, Manipur University, Imphal.

Biochemistry

1. Chakrabarti, Syamalkanti. *Relatedness among members of slow and fast growing rhizobia.* Calcutta.

2. Joshi, Paritosh. *Membrane, phospholipid organization in malarial parasite-infected erythrocytes.* Baroda.

3. Manju Rani. *Influence of salinity on metabolic status of proteins and amino acids during germination and early seedling stages of rice.* BHU. Dr. R.S. Dubey, Department of Biochemistry, Banaras Hindu University, Varanasi.

4. Raychaudhuri, Mallika. *Studies on the biosynthesis of concanavation A.* Calcutta.

5. Santra, Manoranjan. *Studies on certain biochemical characteristics of the living system under lead toxicity conditions.* Calcutta.

6. Singh, Ishwar Saran. *Biochemical aspects of endotosin induced liver damage with special reference to lipid peroxidation and the endogenous antioxidant defence system.* Calcutta.

7. Verghese, Sarah. *Studies on the biochemical effects of serpasil.* Kerala. Dr. K. Saraswathy Devi, Department of Biochemistry, University of Kerala, Kariavattom.

Microbiology

1. Manilal, V.B. *Treatment of organic effluent and the production of single-cell protein.* Kerala. Dr. C. Balagopalan, Scientist and Head, Division of Post Harvest Technology, CTCRI (ICAR) Trivandrum and Dr. C.S. Narayanan, Head, Division of Food, Regional Research Laboratory, Trivandrum.

Botany

1. Bajaj, Neena. *Physiological and biochemical activities of some immobilized algae.* BHU. Prof. E.R.S. Talpasavi, Department of Botany, Banaras Hindu University, Varanasi.

2. Bandyopadhyay, Anuradha. *Microbiological studies on non-O1 Vibrio cholerae isolated from human and environmental sources.* Calcutta.

3. Baruah, Bishnu Prasad. *Studies on mosaic diseases of cauliflower (Brassica oleracea var. botrytis L.)* YS Parmar. Dr. S.C. Chowla, Department of Mycology and Plant Pathology, College of Horticulture, Solan.

4. Bhattacharyya, Haraprasad. *Induction of mutation and polyoloidy in some cultivars of Sesamum indicum L.* Burdwan. Dr. Puspendu Bairagi, Reader, Department of Botany, University of Burdwan, Burdwan.

5. Brar, Navjot Kaur. *Some aspects of non-photosynthetic metabolism of carbon dioxide in some developing systems.* PAU.

6. Byragi Reddy, Thatiparthi. *The pollination ecology of some Verbenaceae.* Andhra.

7. Das, Tandra. *Comparative effects of metals on cellular systems of higher plants and animals.* Calcutta.

8. Garg, Ajay. *Ecological studies of mangrove forests of Andaman Islands.* Vikram. Prof. V.P. Singh, Department of Botany, Vikram University, Ujjain.

9. Ghosh, Paritosh Kumar. *Cytogenetical investigation on the effect of some chemical mutagens on jute (Corcorus olitorious) and application of invitro tissue culture technique in mutation breeding.* Calcutta.

10. Jyotishi, Manisha. *Application, weed control and residual toxicity of a few pesticides in different soils of Malwa area.* Vikram. Prof. P.S. Dube, Department of Botany, Vikram University, Ujjain.

11. Karmakar, Samir Kr. *Palaeoplaynology of the Lower Gondwana sedimentary deposits of Barjora area of Bankura District, West Bengal, India.* Burdwan. Prof. S.K. Roy, Department of Botany, University of Burdwan, Burdwan.

12. Kasinathan, P. *Studies on the developmental anatomy and regeneration in Nymphoides hydrophilla (Leur.) Kuntze.* Bharathidasan.

13. Kulasekaran, M.D. *Studies in parasitic angiosperms.* Mysore.

14. Madhukar, J. *Studies on pre and post harvest diseases of Myrteceous fruits.* Kakatiya. Dr. S. Madhusudhan Reddy, Reader, Department of Botany, Kakatiya University, Warangal.

15. Mukhopadhyay, Gauri. *Studies on the production of the yeast, Hansenula anomala var schneggii as a source of protein.* Calcutta.

16. Pande, Banibrata. *Lipids of crown gall tumour and normal callus tissue.* Calcutta.

17. Ray, Samit. *Cytomorphological investigation on Characeae of West Bengal and an analysis of the factors involved in their oospore germination.* Calcutta.

18. Simba, Anil Kumar. *Impact of industrial pollutants on agroecosystem.* Magadh. Dr. D.D. Pandey, Department of Botany, S.P.M. College, Udantpuri, Biharsharif.

19. Singh, Ajay Kumar. *Effects of air pollutants on phylloplane microflora of wheat.* BHU. Dr. Bharat Rai, Reader, Department of Botany, Banaras Hindu University, Varanasi.

20. Singh, Rajendra Kumar. *Studies on Scletotium rolfsii Sacc, causing foot-rot disease of barley.* BHU. Prof. R.S. Dwivedi, Department of Botany, Banaras Hindu University, Varanasi.

21. Singh, Satya Narayan. *Primary productivity and nutritive value of two important grasses of Gangetic plain in Bihar.* Magadh. Dr. D.D. Pandey, Department of Botany, S.P.M. College, Udantpuri, Biharsharif.

22. Swarup, Indu. *Genetic architecture of quantitative characters in lentil, Lens culinaris Medik.* Bhopal. Dr. H.K. Goswami, Prof. and Head, Department of Genetics, Bhopal University, Bhopal.

23. Tripathi, Daya Shankar. *Studies on mutagenesis and radioprotection in Solanum macrocarpon L.* BHU. Prof. S.K. Roy, Department of Botany, Banaras Hindu University, Varanasi.

24. Valsala Devi, G. *Cytological and palynological studies on the South Indian Acanthaceae.* Kerala. Dr. P.M. Mathew, Prof., Department of Botany, University of Kerala, Kariavattom.

Zoology

1. Agha, Ajai Kumar. *Studies on the endocrine and neuroendocrine physiology of a teleost fish in relation to the pineal organ.* BHU. Dr. K.P. Joy.

2. Annappa, Hooli Ashok. *Studies on some aspects of sexual dimorphism in a few gregarines.* Karnatak. Dr. R.N. Desai, Reader, Department of Zoology, Karnatak Science College, Dharwad.

3. Bandyopadhyay, Kamal Kumar. *Studies on the effects of some neurotoxic agents on the neurosecretory system of adult female roach.* Calcutta.

4. Bandyopadhyay, Swapna. *Biochemical studies in two grassland millepedes, Orthomorpha coarctata and Streptogonopus phipsoni*. Burdwan. Prof. M.C. Mukhopadhyay, Department of Zoology, University of Burdwan, Burdwan and Prof. C.R. Maity, Department of Biochemistry, University of Burdwan, Burdwan Medical College, Burdwan.

5. Bhaumik, Sibani. *Reproductive biology of some common non-poisonous snakes (male) of India.* Calcutta.

6. Chattopadhyay, Sanjib Kr. *Thyro-gonadal interactions in the integration of vernal migration of some male avian species.* Burdwan. Prof. Asit K. Sarkar, Department of Zoology, University of Burdwan, Burdwan.

7. Das, Radha Charan. *Studies on the interrelationship of hypothalamus, pituitary, adrenal and ovarian cycle in some teleosts.* Bihar. Dr. Y.K.P. Sinha, Reader, Department of Zoology, Bihar University, Muzaffarpur.

8. Deb, Tapas. *Biochemical and histological studies of avian spermatogenesis.* Burdwan. Prof. S.K. Ghoshal, Department of Zoology, University of Burdwan, Burdwan and Prof. C.R. Maity, Department of Biochemistry, Burdwan Medical College, Burdwan.

9. Dhingra, Sushma Rani. *Studies on inhibin; 1. Validation of coupled assay for inhibin; 2. Isolation and characterization of ovine testicular inhibin.* Delhi.

10. Gupta, Pratibha. *Biochemical studies on the effect of cisplatin on murine macrophages.* BHU. Dr. A. Sodhi, Reader, Department of Zoology, Banaras Hindu University, Varanasi.

11. Jamil Ahmad. *Studies on the hypothalamo hypophysial and pineal complex in relation to reproductive cycle in bat.* Bhopal. Dr. D.K. Belsare, Prof., Department of Bioscience, Bhopal University, Bhopal.

12. Kundu, Dibyansu. *Antifertility action of an indigenous plant on mice.* Burdwan. Prof. Asit K. Sarkar, Department of Zoology, University of Burdwan, Burdwan.

13. Lalithambika Devi, C.B. *Studies on the flat fish (Heterosomata) larvae of the Indian Ocean.* Kerala. Prof. N. Balakrishnan Nair, Chairman, State Committee on Science, Technology and Environment. Government of Kerala, Trivandrum.

14. Mahata, Susilkumar. *Extra-adrenomedullay hormonal and neural regulation in catecholamine systheses and release of avian suprarenal gland.* Calcutta.

15. Muralidhara, D.V. *Thermogenesis in energy and protein restricted states.* Bangalore. Dr. P.S. Shetty, Department of Physiology, St. John's Medical College, Bangalore.

16. Nair, A.K. Kesavan. *Statistical methods in gear selectivity and gear efficiency studies.* CUST. Dr. K. Alagaraja, Scientist, Central Marine Fisheries Research Institute, Cochin.

17. Nambudiri, D. Damodaran. *Enzyme reactions as index of freshness of fish and shellfish.* CUST. Dr. George Philip, Prof., School of Marine Sciences, Cochin University of Science and Technology, Cochin.

18. Ninawe, Arun Shivnath. *Studies on certain nitrogen cycle bacteria in the prawn culture fields of Kerala.* CUST. Dr. R. Paul Raj, Central Marine Fisheries Research Institute, Cochin.

19. Pandey, Rachana. *The pineal gland and the synchronization of reproductive cycle with environmental factors in a tropical ophidian, the Indian chequered water-snake, Natrix piscator.* BHU. Dr. (Mrs.) C. Halder.

20. Rath, Pramod Chandra. *Expression and modulation of genes during aging of the rat.* BHU. Prof. M.S. Kanungo, Department of Zoology, Banaras Hindu University, Varanasi.

21. Rengma, Hautu. *Studies on the fishes of Nagaland.* Calcutta.

22. Sarkar, Aditi. *Physiological significance of microorganisms inhabiting the termite out and mound.* Burdwan. Prof. Asit Kr. Sarkar, Department of Zoology, University of Burdwan, Burdwan and Dr. Ajit K. Varma, Assoc. Prof. School of Life Sciences, Jawaharlal Nehru University, New Delhi.

23. Saxena, Nayni. *Pineal in Indian palm squirrel, Funambulus pennanti : 5-methoxy-indoles and environmental control of reproduction.* BHU. Dr. C. Halder.

24. Singh, Poonam. *Effects of vasectomy, artificial cryptorchidism and certain antifertility drugs on the male reproductive system of the laboratory mouse.* BHU. Prof. C J. Dominic, Department of Zoology, Banaras Hindu University, Varanasi.

25. Singh, Pratap Bahadur. *Effect of Y-BHC and theophylline on lipid metabolism and steroidogenesis, and their modulation by LH-RH and mGTH in the catfish, Heteropneustes fossilis.* BHU. Prof. T.P. Singh, Department of Zoology, Banaras Hindu University, Varanasi.

26. Usha Rani, K. *Effect of mebendazole and niclosamide on protein metabolism of Avitelline centripunctata (cestode) and host (sheep).* Osmania.

27. Valli Pasha, K. *Studies on the interaction between glutathione and hypothalamic peptide hormones in the rat brain.* Hyderabad. Prof. E. Vijayan, School of Life Sciences, University of Hyderabad, Hyderabad.

Medical Sciences

1. Bhattacharyya, Malabika. *Studies on immunization against Japanese encephalitis virus and an attempt to develop vaccine with locally isolated strain of virus.* Calcutta.

2. Dwarakanath, B.S. *Energy metabolism and repair of radiation induced damage in brain tumors.* Bangalore. Dr. V K. Jain, Director, Institute of Nuclear Medicine and Allied Sciences, Delhi.

3. Hedge, Krishna Subray. *Physiological study on the effects of vasoactive drugs in experimental haemorrhagic shock.* Delhi.

4. Hemalatha Reddy, Palle. *Comparative study on the membranes of slow and fast growing mycobacteria.* Delhi.

5. Kohli, Jaiwanti. *Studies on the effects of metronidazole on immune mechanisms in experimental animals.* Delhi.

6. Kole, Alokranjan. *Studies on the erythropoietic stimulating factors in toad.* Calcutta.

7. Mohamed Noorulla. *Experimental allergic encephalomyelitis in guinea pig : A histological and histochemical study.* BHU. Prof. G.C. Sensharma, Department of Anatomy, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

8. Parminder Jit Singh. *Studies on the biological activity of calmodulin in normal and cadmium treated rat brain and its interaction with other neurotoxic metals.* PGI.

9. Singh, Sushil Kumar. *Studies on the chemistry of polycyclic secondary metabolites from some Amaryllidaceous plants.* BHU. Prof. S. Ghosal, Department of Pharma-

ceutics, Institute of Technology, Banaras Hindu University, Varanasi.

10. Srivastava, Suman. *Functions of ribosomal RNAs.* BHU. Dr. G.R.K. Rao, Department of Biochemistry, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi.

Agriculture

1. Gogoi, Probin Kumar. *Studies on scheduling of irrigation to wheat crop.* HP Krishi. Dr. O.P. Awasthi, Himachal Pradesh Krishi Vishwavidyalaya, Palampur.

2. Mahla, Satyavir Singh. *Studies on effects of mutagens in increasing variability in Indian mustard (Brassica juncea (L). Caern and Coss).* HAU.

3. Mandal, Balaram Chandra. *Effect of intensive cropping and manuriug on crop yield production and changes in some major soil chemical properties.* Calcutta.

4. Mulchen, Bafna Ajeet Kumar. *Nitrogen use efficiency ^{15}N) in tomato (Lycopersicon esculentum Mill,) as influenced by surface and drip irrigation.* MP Agrl. Dr. S.Y. Daftardar.

5. Nayak, Dulal Chandra. *Studies on human-clay mineral systems with view to stabilizing humus in soils.* Calcutta.

6. Prasad, Sada Nand. *Studies on intercropping in upland rice under rainfed conditions in the Vindhyan red loan soils.* BHU. Prof. Mahatim Singh, Department of Agronomy, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi.

7. Singh, Hemant Kumar. *Properties of Op-sensitive esterases in developmental stages of Dysdercus koenigii (F.)* BHU. Prof. H.N. Singh, Department of Entomology and Agricultural Zoology, Banaras Hindu University, Varanasi.

8. Singh, Hemendra Pratap. *Genetics of economic characters in Indian mustard (Brassica juncea (L) Caern and Coss).* BHU. Dr. A.K. Richharia, Reader, Department of Genetics and Plant Breeding, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi.

9. Singh, Santosh Kumar. *Studies on chromosome differentiation in some crop plants.* BHU. Dr. U.P. Singh, Reader, Department of Genetics and Plant Breeding, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi.

10. Singh, Servejeet. *Genetic analysis of metric traits at two nitrogen levels in barley, Hordeum Vulgare L.* Prof. B.D. Singh, Department of Genetics and Plant Breeding, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi.

11. Singh, Vijai Narain. *Genetics of nitrogen fixation and yield traits in green gram, Vigna radiata L. Wilczek.* BHU. Dr. V.P. Singh, Reader, Department Genetics and Plant Breeding, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi.

Veterinary Science

1. Siddiqui, Gulam Mustupha. *Studies on actiopathology and therapeutics of uterine torsion in buffaloes.* PAU.

International Institute for Population Sciences

(Deemed University)

GOVANDI STATION ROAD, DEONAR, BOMBAY-400088

Applications are invited for the following posts :

1. **Professor in Population Studies (One)**—with specialization in the field of Migration and Urbanization for the Department of Migration and Urban Studies. **Scale of Pay** : Rs. 4500-150-5700-200-7300.
2. **Reader in Population Studies (Six)**—Two with specialization in the field of Public Health and Mortality Studies, one with Mathematical Demography and Statistics, one with Fertility Studies, one with Evaluation of Population Policies and Programmes and one in the field of Study of Inter-relationship between Population Dynamics and Economic Development and/or Social Change. **Scale of Pay** : Rs. 3700-125-4700-150-5700.
3. **Lecturer in Population Studies (One)**—with specialization in the field of Migration and Urban Studies and/or inter-relationship between Population Dynamics and Economic Development. **Scale of Pay** : Rs. 2200-75-2800-100-4000.

The application forms alongwith the details of qualifications, experience, etc. required for the different posts may be obtained from the Administrative Officer either in person or with a self-addressed envelope of 25 x 12 cm. in size, affixing Rs. 2.60 stamp, indicating the post for which the application form is required.

The posts carry dearness and other allowances as admissible to Central Government employees of equivalent grade stationed in Bombay. The last date for request for application form is **6th February 1989**. The completed applications should reach the Institute latest by **15th February 1989.**

S. Mukerji
Ag. DIRECTOR

GOVERNMENT OF INDIA

Ministry of Human Resource Development

(DEPARTMENT OF EDUCATION)

SCHEME OF SCHOLARSHIPS FOR STUDY ABROAD 1989-90

Applications are invited from Indian Nationals for the award of scholarships for Study Abroad for post-Doctoral Research/Specialised Training, Post-Graduate studies leading to Ph. D., Master's Degree in Naval Architecture, Offshore Structures, Automation & Robotics, Reliability Engineering, Laser Technology & Paper Technology and Bachelor's Degree in Printing Technology. Preference will, however, be given for Post-Doctoral Research.

Number of Scholarships : Fifty.

Subject of Study/Research : Scholarships will be available in all subjects/fields of study other than those relating to Medicine & Surgery, Agriculture & Veterinary Sciences and Indian studies.

Preference will be given for subjects for which adequate facilities for research are not available in India.

Qualifications : (a) Post-Doctoral Research/Specialised Training. A first class Master's Degree followed by a Doctorate Degree in the subject. The applicants should be engaged in Research/Teaching/Industry. (b) Post-Graduate studies leading to Ph.D. Degree : A first class Master's degree with atleast two years Research/Teaching experience after obtaining the Master's Degree. 2 years research/teaching experience is not required for candidates who have completed the M. Phil. and for candidates with a first class M.Tech/M.E. degree.

(c) Master's Degree.

Course	Qualification
(i) Naval Architecture/ Offshore structures	A first class Bachelor's Degree in Naval Architecture/Civil Engg. with at least two years working experience after obtaining the degree.
(ii) Automation & Robotics	A first class B.E./B.Tech. Degree in Mechanical/Electrical/Electronics/Computer Engg. with control systems as elective subject and atleast two years working experience after obtaining the degree.
(iii) Reliability Engg.	A first class B.E./B.Tech Degree in any branch of Engg. with Quality Control/Operations Research/Statistics as elective subject and atleast two year's working experience after obtaining the degree.
(iv) Laser Technology	A first class M.Sc. Degree in Physics/B.E. or B.Tech. Degree in Mechanical/Electrical/Electronics with laser/Opto-electronics as elective subject and atleast two years working experience after obtaining the Degree.
(v) Paper Technology	A first class Bachelor's degree in Pulp and Paper Technology or first class Post-B.Sc. Diploma in Pulp and Paper Tech. with at least 2 years working experience, after obtaining the degree/diploma.

(d) Bachelor's Degree in Printing Technology : A first class Diploma/Licentiate in Printing Technology preferably with two years working experience.

N.B. Where no Division or class is awarded at the Bachelor's/Master's Degree examination, 60% and above marks will be taken as equivalent to a first class. Experience will be counted upto the last date prescribed for submission of the completed application forms. The Degree of M. Phil, Doctorate, etc. should be complete in all respects before the last date of submitting the application i.e. **15th February, 1989.**

Age : As on 1st October, 1989. (a) For Post-Doctoral Research/Specialised Training, below 35 years. (b) For Post-Graduate studies leading to Ph.D., below 30 years. (c) For Master's Degree in Naval Architecture/Offshore structures/Automation & Robotics/Reliability Engg./Laser Technology/Paper Technology, below 28 years. (d) For Bachelor's Degree in Printing Technology below 25 years. Relaxation in age upto 3 years will be given to SC/ST candidates.

Value of Scholarships : The rates of scholarships will be as follows, subject to such modifications as Government may decide from time to time.

Maintenance Allowance : US Dollar 5,400/- per annum for Bachelor's degree in Printing Technology, US Dollar 6,000/- per annum for Post-Graduate and Ph.D. scholars and US Dollar 7,000/- per annum for Post-Doctoral scholars.

In addition to maintenance allowance, the selected candidates will be entitled to train fare/cost of passage both ways, equipment allowance of Rs. 600/- incidental journey allowance of Rs. 100/- and actual cost of tuition, examination and other compulsory fees and Medical/Health insurance premia. Actual cost of books, study tours, etc. upto a maximum of US Dollar 350/- per annum is also admissible.

Means Test : Only those candidates whose parents/guardians income is Rs. 1000/- (pre-revised scale), or less per month from all sources are eligible for the award of scholarships. If the applicant is employed, his salary also will be taken into account for the purpose. If the applicant has been in full time employment for at least two years before the last date prescribed for submission of applications, the salary to be taken into account for the purpose of income limit would be the applicants salary and not that of the parent/guardian.

In case of persons drawing income from salary, dearness pay and allowances like dearness allowance, city compensatory allowance, house rent allowance or value of rent free accommodation, conveyance allowance and overtime allowance, etc. shall not be included for determining the income.

In case the wife of the scholar is employed, her salary will also be taken into account alongwith that of the scholar and vice-versa.

Deputation allowance and honoraria for undertaking other work, special pay and bonus etc. shall be treated as income. Such items allowable as deductions under the Income-Tax Act for computing the taxable income shall, however, be deducted from the total income and permissible rebates are allowed before determining eligibility of the candidates.

For determining the average monthly income, the relevant period would be preceding financial year i.e. the year from 1st April, 1988 to 31st March, 1989.

General Conditions : (i) Candidates who have already been abroad for study/research/training either on a scholarship or/on their own, will be eligible to apply only if they have been in India for at least five years after return from abroad. (ii) Other things being equal, preference will be given to those who have already secured admission in a University/Institution abroad and also to those who are sponsored candidates. (iii) Employed candidates must send their applications through employers. However, advance application with enclosures will be considered provisionally subject to the stipulation that the application should reach this Department not later than 15 days after the closing date for receiving application. (iv) Attested copies of all the certificates, diplomas, degrees, marks sheet in respect of all examinations passed alongwth caste certificate and experience certificate of employment and one copy of recently taken passport size photograph with signature (to be pasted on the application form) must be sent. (v) Candidates, who are selected for the award will have to submit income certificate for the year 1988-89 as prescribed in 'Means Test' above.

How to Apply : Application should be submitted in the prescribed format given below, preferably typewritten on thick foolscap size paper and should reach the Under Secretary, National Scholarship Division, Department of Education, NS. 5 Section, Room No. 304, 'C' Wing, Shastri Bhavan, New Delhi-110001, latest by **15th February, 1989. Applications received incomplete or after the last date will not be entertained.**

Note : 1. The payments which have been shown in rupees are required to be made in India. 2. Canvassing in any form will disqualify a candidate. 3. Mere fulfilment of requirements as laid down in the advertisement do not qualify a candidate for interview.

PROFORMA FOR APPLICATION

Scheme of Scholarships for Study Abroad : 1989-90

1. Course of degree applied for Subject :
2. Name in full with Surname (in Block letters) :
3. Place and date of birth (Date in Christian era) :
4. Nationality :
5. Marital status : Sex : :
6. Does the applicant belong to SC/ST ? (Yes or no) :
7. Father's/Husband's name :
8. Address for correspondence :
   (in Block letters with pin code) :
9. Complete permanent address (in Block letters) :

Affix your recent
passport size
photograph and sign
across in full.

10. Educational and professional qualifications commencing from Matriculation onwards :

Exams passed	Univ/Board	Year of passing	Class Divn.*	% of marks in aggregate	Subjects taken

*In case no Division/Class is awarded and only grading is done, the conversion formula adopted may be mentioned.

11. Details of professional/practical training & research experience specifying the period and number of papers published. Previous employment with name and date of employment if any.
12. Have you been abroad ? If so give particulars of the Country and the period and also mention the year of return to India.
13. Proposed programme of study/research training (i) The work in which engaged at present (ii) Nature and programmes of study/research desired (iii) Future plans/prospects after the proposed studies/research and (iv) How are these related to the technical/economic development of India.
14. Have you already secured admission abroad, if so the name of the University/Institution.
15. Give below names of 2 persons (they must not be related to applicant) who are in a position to testify from their personal knowledge as to your fitness for the proposed course of study. They must be persons under whom you have worked or studied.
16. I hereby declare that entries in this form and additional particulars (if any) furnished in reply to the questions above are true to the best of my knowledge and belief.

Signature of the Applicant

Place :

Date :

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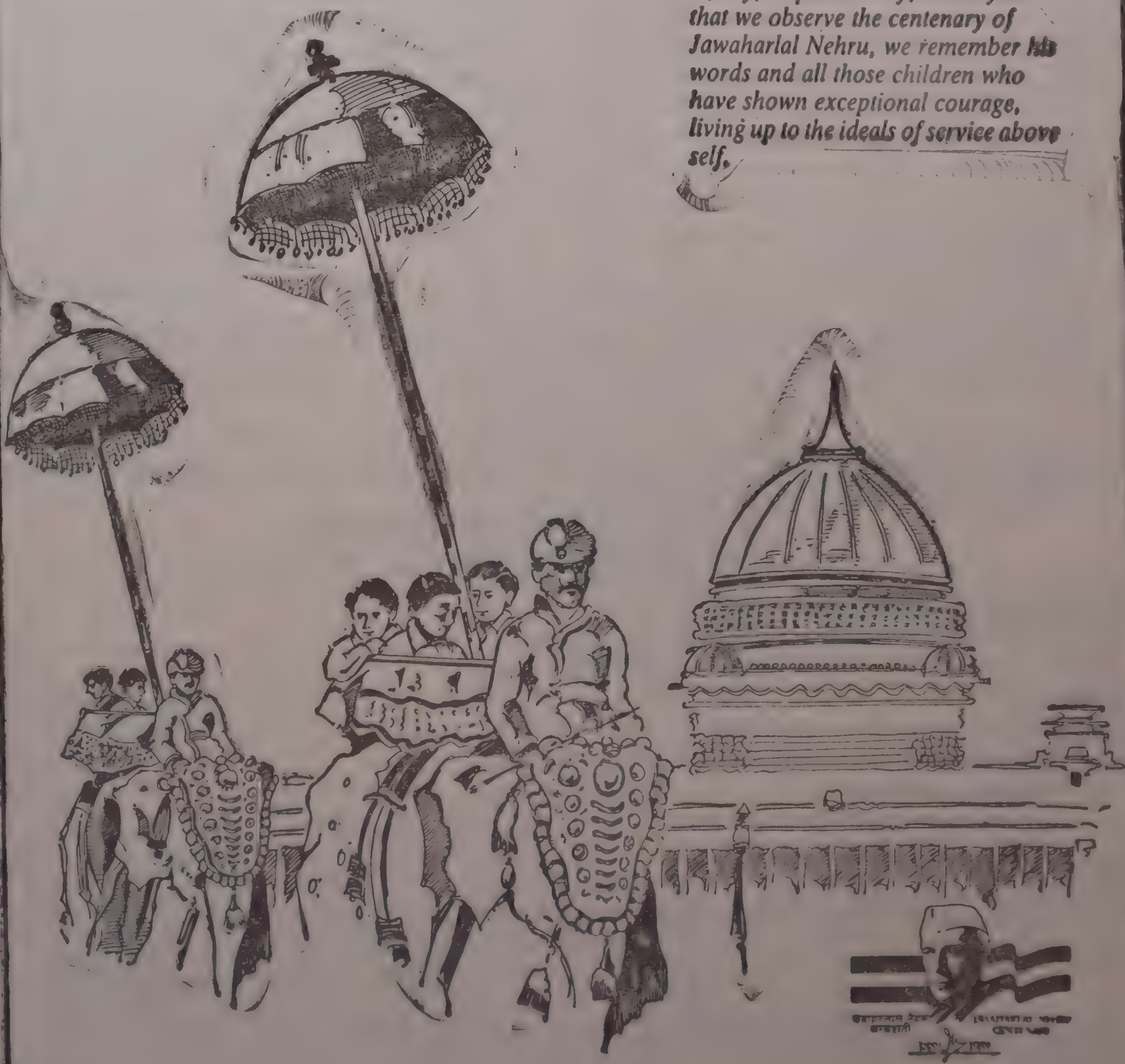
"Be Brave and all the rest follows"

Jawaharlal Nehru

This is what Jawaharlal Nehru wrote to his daughter, Indira Priyadarshini, in a letter dated Oct. 26, 1930.

Today, Republic Day, in the year that we observe the centenary of Jawaharlal Nehru, we remember his words and all those children who have shown exceptional courage, living up to the ideals of service above self.



davp 88/618

SHIVAJI UNIVERSITY

KOLHAPUR

Advertisement No. 30

Applications are invited for the following posts in the University Post Graduate Departments.

Professor (6 Posts) One each in* (1) Chemistry (Organic Chemistry) *(2) Zoology (Animal Physiology/Entomology or Environmental Biology) (3) Mathematics (Pure Mathematics) (4) Chemistry (Polymer Chemistry) (5) Physics (Applied Industrial Electronics) (6) English for ELT Centre (upto 31-7-1989 likely to be made permanent). **Desirable** (I) Post-doctoral research in ELT/Linguistics and in production of teaching materials or innovations in teaching methods (II) Successfully guidance of ELT/linguistic studies at doctoral level.

Reader (5 Posts) One each in + (7) Chemistry (Bio-Chemistry/Bio-Technology) (8) Chemistry (Organic Chemistry) (General) (upto 18-7-1989) (9) Chemistry (Polymer Chemistry)* (10) Physics (Applied Electronics) @ (11) English (Applied Linguistics / Commonwealth literature).

Lecturer (11 Posts) One each in (12) Chemistry (Physical Chemistry) (13) Chemistry (Bio-Chemistry) (General) (upto 31-10-1990)* (14) Physics (Theoretical Physics / Nuclear Physics) + (15) Physics (Electronics—specialisation in Microwave Technology desirable) (16) Mathematics (Algebra/Analysis/Relativity) (17) Mathematics (Algebra/Analysis/Relativity) (upto 26-10-1990 but likely to continue) (18) Geology (19) Economics (Regional Economics/labour Economics) + (20) Economics (Industrial Economics/Money and Banking/Co-operation) + (21) Library Science (22) English (Applied linguistics and Indian Writing in English).

(1) Posts marked with * are reserved for S.C. candidates.

(2) Posts marked with + are reserved for S.T. candidates.

(3) Posts marked with @ are reserved for D.T.V.J. candidates.

(4) Posts at Sr. No. 2, 7, 10, 14, 20 & 21 reserved for respective reserved candidates are being advertised for the Second time.

(5) Post at Sr. No. 15 is reserved for respective reserved candidates and is being advertised for the first time.

Note : (i) If suitable qualified candidates belonging to respective reserved categories are not available then the candidates from remaining categories of backward classes will be considered for the appointment.

(ii) If suitable qualified candidates belonging to reserved categories are not available. then the candidates from open category will be considered for appointment for one academic year only.

(6) Posts at Sr. No. 1 to 11 are for respective reserved candidates only and advertised for the second time.

(7) Posts at Sr. No. 4, 5, 9, 10 and 18 are for the Shivaji University Centre for Post-Graduate Studies at Solapur.

(8) Post at Sr. No. 4 and 9 : Preference will be given to candidates having M. Sc. and Ph. D. in Polymer Chemistry. However, candidates with M.Sc. and Ph.D. in Organic Chemistry who have completed Ph.D. in an area of Polymer Chemistry, and are conducting research in Polymer Chemistry will also be considered.

Pay Scales

Professor : Rs. 1500-60-1800-100-2000-125/2-2500.

Reader : Rs. 1200-50-1300-60-1900.

Lecturer : Rs. 700-40-1100-50-1600.

Likely to be revised as per UGC new scales.

Qualifications

Professor : An Eminent scholar with published work of high quality, actively engaged in research. About ten years' experience of teaching and/or research. Experience of guiding Research at Doctoral level, OR an outstanding scholar with established reputation, who has made significant contribution to knowledge.

Reader : Good academic record with a Doctoral Degree OR equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) Production of Teaching Materials. About five years' experience of teaching and/or research provided that at least three of these years were as Lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding record of teaching/research.

Lecturer : (A) Doctorate Degree or research work of an equally high standard; and (B) Good academic record with at least Second Class, [(C) in the seven point scale] Master's Degree in relevant subject from an Indian University or an equivalent degree from a Foreign University.

The candidates must have teaching/professional experience and/or research publications in the specialisations (if any) shown against the respective posts.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed in (B) above.

Provided further that if a candidate possessing a Doctor's Degree or equivalent research work is not available or is not considered suitable, a person possessing a good academic record (weightage being given to M. Phil. or equivalent degree or research work of quality) may be appointed provided he has done research work, for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain doctor's degree or give evidence of research of high standard/research work of equivalent high standard within eight years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Prescribed application forms (Nine copies) can be had from the University Office. Desirous candidates are requested to send Indian Postal Order of Rs. 15/- only.

Nine copies of application along with necessary enclosures attached to each copy of the application should reach the Registrar, Shivaji University, Vidyanagar, Kolhapur—416 004 on or before 7-2-1989.

Dr. B.P. Sabale
REGISTRAR

BANARAS HINDU UNIVERSITY

VARANASI-221 005

AGRICULTURE ENTRANCE EXAMINATION—1989

INSTITUTE OF AGRICULTURAL SCIENCES

A competitive Entrance Examination of admission to the B.Sc. (Ag.), M.Sc. (Ag.) and Ph.D. courses of the Institute shall be held on **Monday the 5th June, 1989 at Calcutta, Delhi, Madras, Kanpur and Varanasi centres.**

M.Sc. (Ag.) and Ph.D. courses are available in the disciplines of Agricultural Economics, Agronomy, Animal Husbandry and Dairy Sciences, Entomology and Agricultural Zoology, Extension Education, Genetics & Plant Breeding, Horticulture, Mycology and Plant Pathology, Plant Physiology and Soil Science & Agricultural Chemistry.

Eligibility

1. **B.Sc. (Ag.)—(4 years course)**
   - (a) Passed with atleast 50% marks (40% for SC/ST) the (10+2) Intermediate or an equivalent Examination in Agriculture or Science (Physics. Chemistry and Mathematics/Biology).
   - (b) Completed the age of 17 years but has not crossed 22 years on 31st December, 1989.

2. **M.Sc. (Ag.) Programme**
   - (a) Passed the B.Sc. (Ag.) Examination of this University or an equivalent examination.
   - (b) Passed the B.Sc. under 10+2+3 pattern with Botany, Zoology and Chemistry. Admission of such candidates shall be limited to a maximum of one per department and only in the disciplines of Entomology and Agril. Zoology-(Zoology), Genetics and Plant Breeding—(Botany), Mycology and Plant Pathology—(Botany) Plant Physiology—(Botany) and Soil Science and Agricultural Chemistry-(Chemistry).
   - (c) Passed the B.Sc. (AH)/B.Sc. (Dairying)/B.V.Sc. and A.H. examination. Admission of such candidates shall be limited to a maximum of one in the Department of Animal Husbandry and Dairy Science.
   - (d) 50% marks under the traditional system or an O.G.P.A. of 2.5/4.0, 3.5/4.0, 4.0/6.0 and 6.5/10 under the course credit system and should not have more than one 'III' Division in his/her academic career.

3. **Ph.D. Programme**
   - (a) Passed the M.Sc. (Ag.) or an equivalent examination in the subject with at least 50% marks under the traditional system or an OGPA of 2.5/4.00, 3.5/5.00, 4.5/6.00 and 7.5/10.0. Candidates who have secured more than one 'III' Division in their academic career shall not be eligible for admission.

Candidates appearing at the respective qualifying examination shall be eligible to appear at the competitive examination but shall have to provide proof of their passing the qualifying examination on or before the date of counselling.

The prescribed application form and other details can be obtained from the office of the Director, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi-221005, on payment of Rs. 10/- at the counter or by sending Rs. 18/- through I.P.O. duly crossed and drawn in favour of the Deputy Registrar, Institute of Agricultural Sciences, Banaras Hindu University, payable at the Malviya Nagar Post Office, Varanasi-5 **alongwith a self addressed unstamped envelope of 23 × 10 cm. Money order/cheque shall not be accepted.**

Please indicate the course (B.Sc. (Ag.)/M.Sc. (Ag.)/(Ph.D.) on the left hand top corner of the envelope for which you require the application form.

The last date for postal request for forms.	:	04.03.1989
Last date for sale of forms at the Institute Counter		24.03.1989
Last date for submission of completed application forms to the **Controller of Examinations, B.H.U., Varanasi-221005**		**25-03-1989**

DIRECTOR

INDIAN COUNCIL OF MEDICAL RESEARCH

The Council proposes to appoint one Programmer for the Headquarters Office of the Council, New Delhi.

Qualification & Experience : Essential : B.Sc. in statistics or allied subjects with Diploma/Certificate in Computer Programming OR M.Sc. in Computer Sciences.

Experience

B.Sc.—(5 years) in Computer Programming.

M.Sc.—(2 years) (using FORTRAN, COBAL and Basic Languages) and use of PCs for data analysis.

Job Description : The incumbent will be required to assist in monitoring and analysis of data from the ongoing studies in communicable diseases and in health services research.

Salary/Conditions of Service : The scale of pay attached to the post is Rs. 2000-60-2300-EB-75-3200-100 - 3500 plus allowances as per Central Government Rules. Private practice is not allowed. However non-practising allowance is admissible to medical graduates only as per rules of the Council. Benefits of pension admissible.

Age : Below 45 years. SC/ST candidates allowed relaxation in accordance with Government of India Rules.

Candidates called for interview will be paid 2nd class return fare on production of documents.

Applications from employees working in Govt. Departments, Public Sector Organisations and Govt. funded research agencies should be forwarded through proper channel.

Applications can be obtained from the office of the **Director General, Indian Council of Medical Research, Post Box No. 4508, Ansari Nagar, New Delhi-110029 on or before 6th February, 1989.** Forms duly completed should be sent to the **Director General, Indian Council of Medical Research, Post Box. No. 4508,** Ansari Nagar, New Delhi-110029 with a crossed Indian Postal Order for Rs. 8/- payable to Director General, ICMR, New Delhi. SC/ST candidates are exempted from this payment. Incomplete and late applications will not be entertained. **Forms duly completed should reach the ICMR on or before 13th February, 1989.**

TAMIL UNIVERSITY
THANJAVUR

ADVERTISEMENT No. A1/89

Applications in the prescribed form in quadruplicate are invited for the following posts in this University. Last date for receipt of application is **28.2.89** before close of office.

Sl. No.	DEPARTMENT	Prof.	A.P.	Lect
1.	School of Indian Languages	—	1	—
2.	Linguistics	2	—	1
3.	Literature	1	—	—
4.	Philosophy	1	1	—
5.	Siddha Medicine	—	1	—
6.	Archaeology	—	1	—
7.	Ancient Industries	—	—	1
8.	Translation	—	1	—
9.	Centre for Asian Studies	—	—	1
10.	Paintings	1	1	—
11.	Dance	—	1	—
12.	Folklore	1	—	—
13.	Epigraphy	—	1	—
14.	Economics (Tribal Development/Rural Development)	—	—	2
15.	Underwater Archaeology (Prof./Director)	1	1	—
		7	9	5

Scales of Pay

Professors : 4500-150-5700/200-7300

Associate Professors : 3700-125-4950-150-5700

Lecturers : 2200-75-2800-100-4000

Candidates must furnish a Demand Draft for Rs. 25/- (Rupees twenty five only), Rs. 15/- for Scheduled Caste and Scheduled Tribe candidates) for application blanks and details of qualifications etc. drawn in favour of the Finance Officer, Tamil University, Thanjavur 613001 and payable at Thanjavur with a self-addressed envelope (31 c.m. × 13 c.m.) bearing postage stamps to the value of Rs. 2.60. The cost of the application blanks will not be refunded under any circumstances. 18% of the posts are reserved for SC/ST candidates.

In the case of candidates applying from countries other than India, to avoid postal delay, the Bio-data of candidates with copies of publications and a fee of 5 U.S. dollars by International Money Order should be sent to reach the Registrar before the last date indicated above.

Dr. P. Chinnian
REGISTRAR

PUNJAB AGRICULTURAL UNIVERSITY
LUDHIANA

(Recruitment of Deputy Librarian
Advt. No. 1/89)

Applications are invited on the prescribed application form from the candidates possessing the following prescribed qualifications (essential) for one temporary but likely to continue post of DEPUTY LIBRARIAN :

- (i) Second class Bachelor's degree from a recognised University;
- (ii) Second class M.Lib.Sc. OR M.A./M.Sc./M.Com. plus second class B.Lib.Sc. or Diploma in Library Science;
- (iii) Ph.D. in Library Science;
- (iv) Seven years experience in a Library preferably in an Agril. University or a National Research Institute.

The prescribed application form can be obtained either on cash payment of Rs. 2/- from the counter or by sending requisite price through IPO alongwith self-addressed envelope (23 x 10 cms.) bearing stamps of Re. 1/- from the Asstt. Registrar (Rect.), Punjab Agricultural University, Ludhiana. The said application form duly completed alongwith an application fee of Rs. 15/- should reach the Registrar, Punjab Agricultural University, Ludhiana by **13-2-1989.** The payment on account of application fee is acceptable only through Indian Postal Order(s) in favour of the **Comptroller, Punjab Agricultural University, Ludhiana** payable at **PAU Post Office.** Inservice candidates should apply through proper channel.

REGISTRAR

JAWAHARLAL NEHRU UNIVERSITY
NEW DELHI

Advt. No. A&E-II/1/89

The University has openings for faculty positions as indicated in the under-mentioned Schools of Studies/Department.

I. Physical Sciences

The School has openings at various levels i.e. Professor, Associate Professor and Assistant Professor in the aress of Physical Chemistry and Chemical Physics with following specializations : solid state and structural chemistry including chemistry of materials, polymer physics, chemical kinetics and reactions including dynamics of molecular systems, photochemistry and optical spectroscopy.

Essential Qualifications

(1) Professor (Grade Rs. 4500-7300) : (a) An eminent scholar with published work of high quality, actively engaged in research. About ten years' experience in teaching and/or research. Experience of guiding research at doctoral level, OR (b) An outstanding scholar with established reputation who has made significant contribution to knowledge.

(2) Associate Professor (Grade Rs. 3700-5700) : Good academic record with doctoral degree or equivalent published work. Actively engaged in research or innovation in teaching methods of production of teaching materials. About five years' experience with minimum three years as lecturer or equivalent position.

(3) Assistant Professor (Rs. 2200-4000) : Master's degree in the relevant subject with at least 55% marks or its equivalent grade, and good academic record.

II. **Environmental Sciences**

(4) Professor in Chemistry : EQ : as mentioned at (1) above. DQ : Ph.D. in Chemistry with specialization in Physical/Analytical/Inorganic Chemistry including Agriculture Chemistry. The successful candidate will be required to carry out research and teaching in studies related to Environmental problems including Air, Water and Soil pollution. A demonstrated interest in any of these areas is desirable.

(5) Associate Professor in Earth Sciences : EQ : as mentioned at (2) above. DQ : Ph.D. in any branch of Earth Sciences. Five years experience of teaching, research and guiding research at doctoral level. The successful candidate will be required to carry out research and teaching in the areas of Earth Sciences relevant to Environment such as Hydrogeology, Oceanography, Sedimentology, Geo-Chemistry, Geophysics and Geological Engineering. A demonstrated interest in any of these areas is desirable.

(Note : For posts at (4) and (5) above : Candidates who had applied in response to Advt. No. A&F-II/2/88 need not apply again)

III. Languages

Associate Professors one each in French; Chinese Literature; and Japanese Language. EQ : as mentioned at (2) above.

(6) French : DQ : Language and Linguistics / Literature / Translation-Interpretation / Civilization. Ability to teach at post-graduate level.

(7) Chinese Literature : DQ : Training in comparative literature; Teaching and research experience in Chinese Literature/Comparative Literature.

(8) Japanese Language : DQ : (a) Experience of teaching through audio-visual aids; (b) Familiarity with latest teaching methods; (c) Experience of teaching Degree and Post-Graduate Classes/guiding research.

Assistant Professors two in Linguistics; and one each in Chinese Language; Japanese Language; French, and Arabic. EQ : as mentioned at (3) above.

(9) Linguistics : DQ : (a) Historical Linguistics / General Linguistics. OR (b) Psycholinguistics / Computational Linguistics.

(10) Chinese Language : DQ : (a) Speaking fluent Modern Standard Chinese with good accent; (b) Training in Chinese language speaking areas; (c) Teaching experience in Indian Universities.

(11) Japanese Language : DQ : (a) Specialization in literature; (b) Experience of teaching degree & Post-Graduate Classes; (c) Training in Japan in the field of Japanese Language.

(12) French : EQ : French & Francophone Literatures. Teaching experience in the said disciplines.

(13) Arabic : DQ : (a) Specialisation in Modern Arabic Literature; (b) Good knowledge of Culture and Civilization of the Arabic Speaking World (c) Some teaching experience/training in the teaching methodology.

15% and 7½% of the posts of Assistant Professors are reserved for SC and ST candidates respectively. Any of the qualifications/experience may be relaxed at the discretion of the University. It will also be open to the University to consider the names of suitable candidates who may not have applied.

Application forms may be obtained free of cost in person or by sending a self-addressed envelope (23 cm × 10 cm) duly stamped to the Dy. Registrar (Aca. & Estt.-II), Room No. 204-B, Administrative Block, Jawaharlal Nehru University, New Delhi-110067. The applications in prescribed form complete in all respect duly forwarded by the Competent Authority (for those in service) should reach this University latest by 6th February, 1989.

(Abbreviations: EQ : Essential Qualifications, DQ : Desirable Qualifications).

SAMBALPUR UNIVERSITY

JYOTI VIHAR : BURLA

Addendum No. 440/Estt. III

Dated : 9-1-89

This office Advertisement No. 23729/Estt. III, dated 22-12-88 for the post of Professor in English carries the following specialisation.

"Linguistics/Comparative literature/English Literature.

T.B. Susari
REGISTRAR

UNIVERSITY OF LUCKNOW

Advertisement No. 1/1989

WANTED

1. **One Lecturer for Academic Staff College (Rs. 2200-4000)**

Minimum Qualifications

Master's degree or an equivalent Degree of a foreign University with at least 55 percentage marks or its equivalent grade and consistently good academic record.

Candidates with experience of organising orientation / training programmes will be preferred.

The post is temporary upto March 1990 but is likely to continue thereafter. The tenure of appointment will initially be upto March, 1990.

2. One Part-time Lecturer in Sanskrit @ Rs. 1100/- p.m. fixed.

3. One Part-time Lecturer in Bengali @ Rs. 1100/- p.m. fixed.

4. One Part-time Lecturer in Marathi @ Rs. 1100/- p.m. fixed.

Minimum Qualifications

Master's degree or an equivalent degree of a foreign University in the relevant subject with at least 55 percentage marks or its equivalent grade and consistently good academic record.

General

It is not necessary to fill any/all of the advertised posts. Canvassing will be disqualification.

Prescribed application forms can be obtained from the office of the Registrar, free of cost by sending a self-addressed envelope size 23 x 10 cm. with postage stamp worth Rs. 6/- to cover registration charges. Last date for submission of applications, duly completed in all respects with recent testimonials, publications etc. and Bank Draft of Rs. 5/- drawn in favour of the Registrar, Lucknow University, (Postal Order or Money Order will not be accepted) payable at any Bank in Lucknow, is February 15, 1989. Applications without Bank draft will not be entertained. Candidates who are in service should send their applications through proper channel. Application forms to outstation candidates will be sent upto Feb. 8, 1989.

Those who have applied for the post No. 1 in response to our Advertisement No. 1/1988 dated April 22, 1988 need not apply afresh as their old applications will be considered.

M.M. Varma
REGISTRAR

PANJAB UNIVERSITY
CHANDIGARH

Advertisement No. 2/89

Applications are invited for the following posts so as to reach the Registrar, Panjab University, Chandigarh, alongwith postal orders of Rs. 10/- by 16-2-89. Fourteen days extra time is permissible to persons who have to submit their applications from abroad :

1. **Professors :** (Rs. 4500-150-5700-200-7300)

Ancient Indian History, Culture & Archaeology-1;
Commerce & Business Management-1
Dayanand Chair for Vedic Studies-1;
Economics-1;
Education-1;
Gandhian Studies-1;
Geography-1;
Panjabi Lexicography (Unit)-1;
Public Administration-1;
Psychology-1;
Sociology-2.

2. **Readers :** (Rs. 3700-125-4950-150-5700)

Ancient Indian History, Culture & Archaeology-1;
Chinese-1 (Deptt. of Central Asian Studies);
Commerce & Business Management-2;
Economics-1;
Education-1;
French-1;
Gandhian Studies-1;
Labour Law-1;
Mass Communication-1;
Physical Education-1.

3. **Lecturers :** (Rs. 2200-75-2800-100-4000)

Ancient Indian History, Culture & Archaeology-1;
Commerce & Business Management-1
Economics-3;
History of Art-1 (Deptt. of Fine Arts);
Hindi-1;
History-1;
Laws-2;
Music-3 (Vocal-2; Instrumental-1);
Physical Education-2;
Public Administration-1;
Sanskrit-1.

Note :
1. The Vice-Chancellor could place before the Selection Committee names of suitable persons for its consideration along with the applications received in response to the advertisement.
2. It is not obligatory on the part of the University to call for interview every candidate who possesses the essential qualifications.
3. The number of vacancies may change.
4. The University may also prepare a panel in order of merit upto 3 persons which shall be valid for a period of six months.

Cyclostyled copies of 'Detailed Instructions for Candidates', qualifications (essential & desirable), specializations, various allocations and reservations concerning the various posts and other details are separately available with the application forms. These can be obtained from the Cashier, Panjab University, Chandigarh, personally on payment of Rs. 2/- or by making a written request to the Assistant Registrar (Estt. I), Panjab University, Chandigarh, accompanied by self-addressed stamped (worth Rs. 5.40) envelope of 23 x 10 cms. and postal order of Rs. 2/- drawn in favour of the Registrar, Panjab University, Chandigarh.

INDIAN INSTITUTE OF TECHNOLOGY
KANPUR

Advertisement No. DF-17/88

Applications are invited for Two posts of Research Associates in the Curriculum Development Cell.

The initial appointment will be for one year and may be extended on year to year basis. The consolidated salary will be fixed on the basis of experience etc. in either of the two slabs : Rs. 2700-100-3200 OR Rs. 3200-100-3700.

Qualifications (Post 1) : Ph.D. in literature / language. A few years teaching experience is desirable.

Qualifications (Post 2) : Ph.D. in Physics/Chemistry/Mathematics OR M. Tech. in Computer Science. A few years experience of working on PC/Micro-computers and Software Development for course packages is desirable.

Candidates may submit their bio-data on plain paper alongwith copies of all relevant certificates. Applications should reach the Dean, Faculty Affairs, Indian Institute of Technology, Kanpur-208016 latest by **10th February, 1989.**

HARYANA AGRICULTURAL UNIVERSITY
HISAR

Corrigendum to Advertisement No. 1/89
Published on 9-1-89

Last 3 lines of note 4 are deleted. However if ESM candidates for the post of Architectural Assistant are not available, this will be filled up from general category. The last date for receipt of applications is extended upto **14-2-89** for all posts.

REGISTRAR

THE UNIVERSITY OF BURDWAN
RAJBATI : BURDWAN
WEST BENGAL

Advertisement No. 14/88-89
Dated : January 10, 1989

Applications in the prescribed form are invited for the following posts in the approved scales of pay viz. Professor—Rs. 4500-150 - 5700 - 200 - 7300/- (since revised); Lecturer—Rs. 2200-75-2800-100-4000/- (since revised) plus dearness and other admissible allowances and pensionary benefits according to the University Rules.

A. **Professorship in Chemistry :** – One Post.
B. **Professorship in Business Administration :** —One Post
C. **Professorship in Economics :** —One Post

D. **Lecturership in Business Administration : One Post**

E. **Lecturership in Economics : One Post** (lien bound but likely to be permanent).

Minimum Qualifications

For Professorships

An eminent scholar with published work of high quality actively engaged in research. About ten years' experience of teaching and/or research. Experience of guiding research at doctoral level.

Or

An outstanding scholar with established reputation who has made significant contribution of knowledge.

For Lecturership in Business Administration

A Master's degree in Business Administration or M. Tech. in Engineering with first class with the provision that the incumbent would acquire a doctorate degree within a period of eight years.

In case of allied subjects like Industrial Psychology, Personnel Management, Business Statistics, Cost Accountancy where Lecturers are required to be recruited with qualification other than M.B.A. or M.Tech., the minimum qualification shall be the same as prescribed for the post of Lecturership in Economics.

For Lecturership in Economics

(a) A Doctor's degree or research work of an equally high standard; and

(b) Good academic record with at least Second Class (C in the seven point scale) Master's degree in a relevant subject from an Indian University or an equivalent degree from a Foreign University.

Having regard to the need for developing inter-disciplinary programmes, the degrees in (a) and (b) above may be in relevant subjects.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable a person possessing a good academic record (weightage being given to M. Phil. or equivalent degree or research work of quality) may be appointed provided he has done research for at least two years or has practical experience in a research laboratory / Organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research of high standard within eight years of his appointment, failing which he will not be able to earn future increment until he fulfils these requirements.

Desirable Qualification : Specialisation or Proficiency

For A : Inorganic/Organic / Physical and/Nuclear-Analytical Chemistry.

For B : Operations Management.

For C : Any branch of the subject.

For D : Marketing Management.

For E : 1. Statistics and Econometrics.

2. International Economics.

Those who do not fulfil the minimum qualifications need not apply. The choice of the Committee may not necessarily be confined to those who apply formally.

For application form and other particulars please apply to the Registrar, University of Burdwan, Rajbati, Burdwan-713 104 with a self-addressed stamped (Re. 1/-) envelope (9" x 4").

Last date for submission of application with requisite fee of Rs. 5/- is **February 7, 1989.**

A.P. Baisnab
REGISTRAR

MAHARSHI DAYANAND UNIVERSITY

ROHTAK

Advertisement No. 2/89

Applications on prescribed form are invited for the following posts :

1. **Professor** : Computer Science and Applications (one)

2. **Lecturers** : Computer Science and Applications-(two)

3. **Director** : Regional Centre, Rewari-(one) (Rs. 4500-7300)

4. **Principal** : University Campus School-(one) (2200-4000+Rs. 100/-). Special duties performance allowance+rent free unfurnished accommodation or the payment of Rs. 200/- p.m. in lieu of accommodation).

5. **System Engineer** : Computer Centre-(one) (Rs. 1100-1600 unrevised) (UGC).

Qualifications

Professor in Computer Science and Applications

1. An eminent scholar with published work of high quality actively engaged in research;

OR

M.S./M. Tech./M.E. in Computer Science/Computer Engineering;

OR

A post-graduate degree in Mathematics/Physics/Electronics or M.C.A. with Ph.D. degree in Computer Science.

2. Ten years teaching/research experience (relaxable in the case of a candidate with outstanding merit), including atleast two years as a Reader in Computer Science.

Lecturer in Computer Science & Applications

M.S./M. Tech./M.E. in Computer Science/Computer Engineering or M.C.A.;

OR

B. Tech./B.E. in Computer Science/Computer Engineering with 2 years of teaching/research experience (experience relaxable in the case of a candidate with outstanding merit).

OR

(a) A doctorate's degree in Computer Science or research work of an equally high standard; and

(b) Good academic record with atleast 2nd class (C in the Seven Point Scale) Master's degree in Mathematics/ Physics / Electronics from an Indian University or equivalent degree from a foreign University.

"Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a good academic record. (weightage being given to M. Phil. or equivalent degree or research work of quality) may be appointed provided he has done research work for atleast two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research of high standard failing which he will not be able to earn future increment beyond the stage of Rs. 3400/- in the scale of Rs. 2200-4000 until he fulfils these requirements."

Director, Regional Centre, Rewari

1. An eminent scholar with published work of high quality actively engaged in research. About ten years' experience of teaching and/or research. Experience of guiding research at doctoral level.

   OR

   An outstanding scholar with established reputation who has made significant contribution to knowledge.
2. Sufficient administrative experience at University level.

Principal, University Campus School, Rohtak

Essential

(i) A Master's degree.

(ii) A degree or a post-graduate degree / diploma in teaching/education.

(iii) Atleast 10 years educational experience including atleast 5 years educational administrative experience at the level of Principal / Head Master of an English Medium School.

Desirable

(i) Should have good command over English and Hindi.

(ii) Experience in organising games, sports and other co-curricular activities.

System Engineer

Master's degree in computer science with specialisation in software Engg. with experience.

U. G. C. Pay-scales. Other allowances and benefits of Contributory Provident Fund admissible as per University rules. Higher start admissible in deserving cases. Knowledge of Hindi essential for all posts. Number of posts is liable to be increased or decreased.

The applications will be screened by the Committee to be appointed by the Vice-Chancellor. The Screening Committee will be competent to screen applicants and classify them on the basis of qualifications and experience and call for interview only the selected candidates. **It shall not be obligatory on part of the University to call all candidates for interview.**

Reservation for Ex-servicemen/ B.C./S.C./S.T. candidates as per rules. However, where the candidates under reserved categories are not available, the posts will be filled from amongst the general category's candidates.

Applications are to be submitted on the form prescribed for Class 'A' Officers alongwith attested testimonials and crossed Postal Order's) for Rs. 10/- drawn in favour of the Finance Officer, M.D. University, Rohtak, payable at the Post Office, Rohtak. Applications (through proper channel from those in employment) complete in all respects should reach the Asstt. Registrar (Estt.) Teaching, M.D. University, Rohtak by **9-2-1989.** Incomplete applications or applications received after the expiry of last date shall not be entertained. The Application form can be had from the Press Manager, M.D. University, Rohtak on payment of Rs. 2/- at the counter and Rs. 3/- by ordinary post.

REGISTRAR

JADAVPUR UNIVERSITY

CALCUTTA—700 032

Employment Notification No. A2/C/1/89

Dated : January 3/4, 1989

The University invites applications in the prescribed form for the following posts :

1. **Professor** — Electronics & Telecommunication Engineering — One post

Qualifications

Essential : An eminent scholar with published work of high quality actively engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding Engineer/ Technologist with established reputation who has made significant contribution to knowledge.

Desirable (a) Ten years' experience of teaching in an Engineering Department of a University/Institution of higher learning of which at least 5 years at the post-graduate level.

(b) Must have good academic record with Master's degree in Electronics and Telecommunication Engineering or equivalent.

(c) Doctorate degree in the relevant field.

Specialisation—Communication/ Computer / Control / Device /Microwave

2. **Reader**—(a) Architecture — One post

(b) Philosophy — One post

Qualifications for the post at Sl. No. 2(a)

Essential—B.Arch. with 7 years' experience in teaching / research/ professional work.

OR

M.Arch. with 5 years' experience in teaching / research / professional work.

Desirable—Research experience in related field; Climatology; Building Economics.

Specialisation—Building Maintenance and Building Science.

Qualifications for the post at Sl. No. 2(b)

Essential : Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

About five years' experience of teaching and/or research provided that at least three of these years were as Lecturer or in an equivalent position.

This condition may be relaxed in the case of candidates with outstanding record of teaching/research.

Specialisation : Philosophy of Action/Philosophy of Logic/Indian Philosophy / Ethics/Philosophy of Man/Philosophy of Science.

3. **Lecturer** (a) Mechanical Engineering — Nine posts

(b) Philosophy — One post

(c) Library & Information Science — One post

Qualifications for the post at Sl. No. 3(a)

Essential : (i) Master's degree in appropriate field in Engineering/Technology;

(ii) Good academic record with a Bachelor's degree in Engineering/Technology. First Class at Bachelor's degree and/or Master's degree level;

(iii) One year's relevant professional experience outside academic/research institutions.

Having regard to the requirements of emerging fields of Engineering and of developing interdisciplinary programmes, the requirements of Engineering/Technology degree may be waived in the cases of otherwise well qualified candidates.

Provided further that if a candidate does not possess professional experience or a person possessing such experience is not found suitable, the person appointed will be required to obtain desired professional experience within a period of eight years of his appointment failing which he will not be able to earn future increments, until he fulfils these requirements.

Wherever candidates with M.Tech. / M.E. qualifications are not available or M.Tech. / M.E. candidates are not found suitable for appointment, the essential qualification may be relaxed and the institutions may appoint First Class Engineering Graduates against the post of Lecturers. Such relaxation will, however, be subject to the condition that the candidates concerned shall have to obtain the M.Tech./M.E. degree within a period of five years. Those candidates who fail to obtain the M.Tech./M.E. degree within the stipulated period of five years shall not be entitled for drawing their increments due unless they acquire the prescribed qualification.

Qualifications for the posts at Sl. Nos. 3(b) & 3(c)

Essential : (a) A Doctor's degree or research work of an equally high standard; and

(b) Good academic record with at least second class Master's degree in a relevant subject from an Indian University or an equivalent degree from a foreign university.

Having regard to the need for developing interdisciplinary programmes, the degrees in (a) and (b) above may be in relevant subjects.

Provided that if the selection committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a good academic record, (weightage being given to M.Phil. or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years on the condition that he will have to obtain a Doctor's degree or give evidence of research of high standard within eight years of his appointment, failing which he will not be able to earn future increment until he fulfils these requirements.

Specialisations

For post 3(a)—Applied Mechanics/Heat Power/Fluid Mechanics/Machine Design/Production.

For post 3(b)—(i) Samkhya-Yaga/Mimanssa/Vedanta—One post

(ii) Nyaya Vaisesika/Bauddha/Jaina —One post

(iii) Philosophy of Mind/Philosophy of Language/Ethics/Philosophical Psychology/Philosophy of Science —One post

Explanation

For determining "good academic record" the following criterian shall be adopted.

University Lecturers

(i) A candidate holding a Ph.D. degree should possess at least a second class Master's degree; or

(ii) A candidate without a Ph.D. degree should possess a high second class Master's degree and second class in the Bachelor's degree; or

(iii) A candidate not possessing Ph D. degree but possessing second class Master's degree should have obtained first class in the Bachelor's degree.

Persons having secured marks more than the mid point **of the prescribed minimum marks for passing an examination in the second division and the prescribed minimum marks for passing an examination in the first division by a University shall be deemed to have passed that examination in the high second class.**

Scale of Pay :

Professor — Rs. 1500-60-1800-100-2000-125/2-2500/-

Reader—Rs. 1200-50-1300-60-1900/-

Lecturer—Rs. 700-40-1100-50-1600/-

Last date of Receiving Application is **January 31, 1989.**

Application forms are obtainable from the University Office during working hours on payment of Rs. 2/- or by post on payment of Rs. 3/- inclusive of postage. Higher initial salary may be given to really deserving candidates. Those who are in employment should submit their applications through proper channel. No travelling allowance is admissible to candidates called for interview. Choice of Selection Committee will not necessarily be confined to applicants only. Canvassing in any form will disqualify a candidate. Applications received after the prescribed **LAST DATE** will not be considered.

REGISTRAR

Colourful Cultural Evening

January 7, 1989

AFFAIRS &
EVENING

Shri M. Varadarajan, Secretary, Department of Youth Affairs & Sports, lighting the lamp to inaugurate the cultural evening

ASSOCIATION OF INDIAN UNIVERSITIE
DEPARTMENT OF YOUTH AFFAIRS & SPORTS
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BY
INDIAN UNIVERSITIES

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University News

MONDAY, JANUARY 30, 1989 Rs. 2.50

fth Convocation of Bharathidasan University. Photo shows (Left to Right) Prof. T.S. Shanmuga Sundaram, Registra Dr. A. Padmanabhan, Pro-Chancellor; His Excellency Dr. P.C. Alexander, Chancellor; Hon'ble Mr. Justice S. Mohan, Judge, High Court, Madras; and Dr. S. Muthukumaran, Vice-Chancellor.

Lalit Narayan Mishra College of Business Management

MUZAFFARPUR

(An Autonomous Institution Under University of Bihar)

M.B.A. ADMISSION—1989-91

Applications are invited for admission in the two year Master of Business Administration (MBA) Course of Bihar University.

Eligibility : Admission is Open to Graduates belonging to any faculty—Arts, Science, Commerce, Engineering. Medicine, Agriculture, etc. Employed Graduates having atleast two years experience in Public Undertaking, Public Limited Companies or other such establishments of repute, holding executive posts are eligible for admission provided they are sponsored by their employer's for a period of two years and attach the certificate of sponsorship with the application for admission. Entrepreneurs engaged in Industries, must produce certificate of two years practical experience. Those whose application will not satisfy these conditions will be summarily rejected.

Selection Procedure : Applicants will be selected on the basis of written examination followed by personality test, sponsored candidates are exempted from appearing at the written examination. A limited number of applicants under the sponsored group will be called for interview for selection.

Reservation : Some seats are reserved for scheduled castes/tribes and girl candidates. Five seats are reserved for FOREIGN STUDENTS to be nominated by the Ministry of Education, Government of India, New Delhi, latest by 8th June, 1989.

Prospectus and Application Form : Are available from 5th January, 1989 on payment of Rs. 40/- at the college office on working days between 9.00 a m. to 1.00 p m. or by registered post on remittance through Bank Draft/Money Order for Rs. 50/- drawn in favour of the DIRECTOR, LALIT NARAYAN MISHRA COLLEGE OF BUSINESS MANAGEMENT, MUZAFFARPUR. No claim for refund of money paid for Forms and registration will be entertained.

Last Date for Submission of Form : Completed application form with a registration fee of Rs. 50/- addressed to the ADMINISTRATIVE OFFICER-CUM-REGISTRAR, LALIT NARAYAN MISHRA COLLEGE OF BUSINESS MANAGEMENT, MUZAFFARPUR must reach the college on or before **18th March, 1989**.

Written Test : Applicants having sent the completed application form must report at 9.00 a.m. on 2nd April, 1989 for written examination of three hours duration to be held in the Bihar University as well as in the College campus.

DIRECTOR

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UNIVERSITY NEWS

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Editor :
SUTINDER SINGH

Science, Culture & Consciousness

B. Sheik Ali*

In our time, science, philosophy, art and religion whose happy combination forms culture have greatly exercised our mind. Yet the seminal concept here is consciousness. Consciousness is the field where the seeds of science are sown, and the fruits of culture are reaped. Consciousness helps us to know and understand all things, the proper and systematic study of which is science, and the artistic creativity of which is culture. Consciousness is a kind of sense perceptions, which involve memory and activity of imagination. Every phase of mental or psychic life is related to consciousness. Consciousness is existence, but mere existence is not consciousness or else distinction between man and other living beings would disappear. Consciousness manifests itself in experience, which is either subjective or objective. Subjective experience gives us art, poetry, philosophy, religion, truth, beauty, honour, faith, belief and other abstract concepts. Objective experience comes out of the study of nature, which gives us science. The cumulative product of all experiences assumes the shape of human culture.

Science is a body of systematised knowledge either of empirical or rational type. Empirical branch is experimental where observation, verification and generalisation is possible, but rational or abstract branch becomes philosophical or deductive science. Thus knowledge which is the bedrock of culture is either science or philosophy, either experimental study of nature or metaphysics. A little deeper analysis of these two branches of knowledge, philosophy and science, on which culture rests is necessary to differentiate their respective roles in the formation of culture.

Philosophy is an attempt to know the unknown through extra scientific method. Philosophy is the collective name for questions which have not been answered to the satisfaction of all who have asked them. In science we are sure where we stand, as we deal with such problems as plant life, or animal life, or solids or liquids or gases, but philosophy is an area yet to be conquered. It deals with such abstract concepts as human soul, ultimate reality, truth, honour, beauty, value, virtue and morality. Philosophy is an attempt to find out the meaning of our ideas to synthesise concepts that elude explanation, and to seek good things of mind. The function of philosophy is different from that of science. Science deals with analysis, philosophy deals with synthesis. Science studies the outerworld, philosophy studies the inner world. Science tells us how to heal and how to kill, philosophy tells us how to live and how to be happy. Science gives us knowledge, philosophy gives us wisdom. Science coordinates the observations to draw broad conclusions, philosophy subordinates them to evolve a system. Science is concerned with nature, philosophy is immersed in man and his problems, with which culture is related. In short philosophy is the science of sciences, the knowledge of the ultimate, the adviser to man, and the search for the meaning of life.

Deep study of what exists in nature with all its ramifications is science. But the sublimation of man's intellect to understand the mystery

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Vice-Chancellor, Goa University, Bambolim, P.O. Santa Cruz, Goa-403 005.

of life is philosophy, which blossoms forth in culture. It is all concerned with man's relation to the universe, the nature of reality, the inner nature of man, man's mind, the doctrine of ideas, the behavioural pattern, and the direction of development. Harmony, unity and peace in any society would depend upon how well that society could comprehend these philosophical concepts. The intellectual and spiritual parameters of a society are more important for the growth of a culture than scientific or technological advance. A unified nation, much less a unified world, is a dream without spiritual and intellectual awareness in the hearts and minds of men.

Culture is a composite whole of which science is a part. Culture deals with man's mind, man's intelligence, and how he used this intelligence to discover better ways of living, and to build up orderly societies which we call civilisation or culture. Culture is that complex whole which includes knowledge, belief, art, morals, customs and any other capabilities or habits acquired by man as a member of the society. Culture is the product of forces, social, political, economic and psychological that shape the course of human progress. Several streams flow and join the watershed of culture. Scientific advancement brings utility, knowledge and power. Artistic ability brings finer taste, beauty and pleasure. Intellectual capacity results in philosophy, comprehension and understanding. Intuitive, instinctive and contemplative faculty offers religion, poetry, ethics, morality, and spirituality. Culture is attained because of man's wisdom, knowledge, skill and devotion. Wisdom is the ability to distinguish between right and wrong. It is the intelligent contemplation of life. It is the capacity to see all things purely as objects of understanding. It is the experience of the world which acts as a kind of text for which reflection and knowledge act as the commentary. Knowledge is that thought-process which helps us to know the nature of things. It is the first trench in the siege of truth. Reason is its sword to conquer. This world is rationally ordered. Understanding the inner relationship of this order is knowledge. It is the business of both science and philosophy to unravel the mystery of life and of universe. From knowledge we move to skill, which is applied science or technology. It is the art of translating our ideas into different designs. Art, architecture, painting, music, literature, philosophy, all require man's craft or skill to improve upon what exists before. This we call progress or culture.

A question could be asked what is the genesis of a culture ? How does it originate ? The answer is not simple. There are as many explanations as there are philosophers. A theologian would say it is the doctrine of Divine Will. To a metaphysicist, it is the product of dominant concept or ideology. To a rational thinker, it is the notion of a society's urge for a change manifesting itself in its thought and action. To a utilitarian, it is the machinery of law and order that creates a culture. A romanticist would hold impulsive spontaneity as the cause of culture. A Sociologist would think that the hard common sense of the people working in harmony in the best interest of the people yields a pattern we call culture. The Marxists would regard the satisfaction of man's basic demands as culture. A philosopher would feel that the cumulative impact of all dominant ideas would usher in a culture. If he is Toynbee he would explain challenge and response as factors for culture. If he is Hegel, he would offer his idealistic theory. If he is Carlyle, he would think great men alone would create culture. Historical synthesis would reveal that contingency, necessity and logic act as agents of culture. Thus, the rise of a culture is a complex phenomenon for which no satisfactory explanation has yet been given. Likewise the factors responsible for the growth or decay of a culture have also been controversial depending upon the thought-process of the person who reacts to it.

Consciousness is also an abstract idea which is difficult to quantify. It comes out of sense perceptions and helps man move on the path of progress. Involvement in reflective and speculative arena would result in art, and interest in practical activity and objective sphere advances science. Intimate association with nature and its phenomena is the business of science. In the context of ethics, morality and religion the consciousness becomes philosophical. In the field of poetry it takes the flight of imagination that touches and moves the heart of the people to teach delightfully. Consciousness yields to experience and prudence, and moulds us every hour. It converts our mind into a mirror of our times. It generates within us strange sensations and feelings; it opens the door of our five senses to comprehend the world around us. More than all, it gifts us great ideas which form the core of progress.

The great ideas are also the concepts by which we think about things. Our perception, imagination, memory, judgment, understanding and reasoning, are all the result of our consciousness and intense reflective activity. The highest source of knowledge is human consciousness, which is not subject to rational analysis. Man acts not merely under rational inspiration but also under emotional, instinctive and intuitive forces. Since all his activities could be brought under the cognition of personal experience, there is no need to bring metaphysical abstractions to explain human behaviour. Such speculative ideas as to what happens to the soul after it leaves the body, what is the nature of God, and what is Divine Will are not within the cognition of man's experience, and hence they are excluded from science, but philosophy which is an essential aspect of culture delights in offering its own explanation on them. For example, Benedetto Croce, the Italian philosopher, would think that all reality is the work of one Unified Spirit, which extends to the utmost bounds of human experience. It is wholly unified, absolute and omnipresent, but in its manifestation it is a quaternity. It has four different forms or aspects or grades, which together without addition constitute the whole of this Spirit. These four aspects are aesthetic, ethical, logical and economic, which are the four corners of any culture. They are art, morality, reason and material well-being. When these four factors function in an orderly manner, culture emerges. These fundamental forces account for the progress of man, is the view of Croce. From Aristotle to the present day limitless number of efforts are made to grapple with the question of what produces a culture.

In short we may say cultural achievement is the result of human consciousness. Human mind operated in the past more or less the same way as it does today. All history is nothing but the unfolding drama of human freedom, is a phenomenon which was true in the past, as also in the present. Consciousness of this phenomenon is the seed of the culture, and the technique of achieving the goal is the subject matter of science. Knowledge in the various sciences is unified and related. Interrelations of men in society result in the interplay of challenges, which if successfully responded would yield a culture. The environment challenges the society, and the society through its creative leadership responds to the challenges in a successful way. A new challenge follows and a new response ensues, and the process continues until the society touches the core of culture. Man has consciousness, which produces rational will, which is at the root of all this process. This rational will produces art, religion and philosophy. Man is drawn to think of his own essence. This essence is nothing but his own rational consciousness. Rationality and consciousness are something unique, which partake the nature of divinity. Thought is nothing but a motion and a spirit that impels all things to evolve a pattern we call culture. Spirit is nothing but pure activity.

Human mind objectifies itself in its endeavour to find something identical with supreme and sublime in nature. He imitates God's creation of beauty to paint Mona Lisa. He takes a leaf from nature's lamp that rises everyday in the east himself to produce heat and light through electricity. He observes the system and order in the universe, and so tailors his own life to sooth his strained nerves. He delights himself with the melody of the running brook, and so fabricates a metallic string to produce music. He gets excited at the singing of a Cuckoo or nightingale which find an echo in his own vocal chords. He ponders over the mystery of the birds in the sky, and so attempts to have a device himself to fly. He sees the bees in the sun, so busy, so cooperative, and so unified, and himself imitates to build a society where such harmony could exist. He wonders at the fidelity of a dog, the utility of a cow, the swiftness of a horse, the fragrance of a rose, and saner element in him whispers why not copy them. The flowers in the green hills excite in him a finer taste to be creative, imitative and innovative, and thus the mills of culture grind to evolve a pattern of better ways of living for man. All this is the gift of human consciousness. Science is the tool and culture is the product. Therefore, there is intricate inner relationship in these three concepts of science, culture and consciousness. They are mutually complimentary, and are very essential ingredients for man's progress and happiness. ☐

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Constitutional Provisions Relating to Education

T. K. Tope*

The topic 'Constitutional provisions relating to Education' may be discussed under the following heads :

(1) Provisions regarding education in the Constitution of India.
(2) Legislations passed and rules made by various authorities under the Constitution.
(3) Judicial interpretation of the constitutional provisions and the relevant legislation.

I

The Constitution has not made elaborate provision regarding education. Following are the important provisions :

(a) Directive Principles of State Policy include following provisions relating to education :

(i) "**Provision for free and compulsory education for children**"—The State shall endeavour to provide within a period of ten years from the commencement of the Constitution, for free and compulsory education for all children until they complete the age of fourteen years (Art 45)

(ii) "**Promotion of educational and economic interest of Scheduled Castes**"—The State shall promote with special care the educational and economic interest of the weaker section of the people and, in particular of the scheduled castes and the scheduled tribes and shall protect them from social injustice and all forms of exploitation (Art 46).

(iii) "**Right to work, to education and to public assistance in certain cases**"—The State shall within the limits of its economic capacity and development make effective provision for securing the right to work, to education and to public assistance in cases of unemployment, old age, sickness and disablement and in other cases of undeserved want (Art 41).

(iv) "**Protection of monuments and places and objects of national importance**"—It shall be the obligation of the State to protect every monument or places or objects of artistic or historic interest, declared by or under law made by Parliament, to be of national importance from spoliation, disfigurement, distruction, removal, disposal or export, as the case may be (Art 49).

Under the Constitution, these directive principles are fundamental in the governance of the country, but they cannot be enforced through Courts of Law (Art 37). However, the Supreme Court has interpreted the directive principles in a very liberal manner and even enforced some of them under appropriate situations.

The ideal of universal, free and compulsory education for all children under fourteen years of age has remained an ideal only during the last thirty nine years. Even the literacy rate is very discouraging. There were 43 crores of illiterate people in India in 1988. I do not know the present position. The ambitious goal mentioned in the Programme of Action under New Educational Policy is bound to remain a dream only. Unless some revolutionary steps are adopted the ideal can never be achieved. I would mention a few of such steps : (1) Primary education must be taken away from Zilla Parishads. A new pattern of control must be envisaged. In this pattern, politicians must not have any say. (2) Primary education, being a constitutional mandate, more funds must be made available for primary education. Expenditure on higher education must be reduced. Higher Education must be the responsibility of the society and not the State. Bright students coming from disadvantageous families, may be given loans for their education from the Banks and these loans must be repaid by such students. Such loans must be a charge on the income of such students when they start earning. Giving anything, free, loses all its importance.

II

The Constitution includes a provision for Fundamental Duties also (Art 51A). Following fundamental duties relate to the type of education imparted in

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[Based on Ms. Sulabha Panandikar Memorial Lecture, 1989]

* *Former Member, Law Commission and Vice-Chancellor, University of Bombay (1971-77).*

the educational institutions : (a) to render social service when called upon to do so, (b) to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional and sectional diversities, and to denounce practices derogatory to the dignity of women, (c) to value and preserve the rich heritage of our composite culture, (d) to protect and improve the natural environment including forests, lakes, rivers and wild life and to have compassion for living creatures, and (e) to develop scientific temper, humanism and spirit of inquiry and reform.

It would be for the educational institutions to impress on the minds of the taught the significance of these fundamental duties so that later in life they may work in a manner consistent with these duties.

III

Special Provisions for the Weaker Sections

It is a constitutional obligation of the State to promote educational and economic interests of the weaker sections of the people and in particular of the Scheduled Castes and the Scheduled Tribes. Some of the measures adopted by the State to fulfil this obligation were declared unconstitutional by the Supreme Court in view of the provisions of the fundamental rights.[1] Hence, Parliament amended the Constitution and inserted a new clause in Art 15. The clause is as follows :

> "Nothing in this article or in clause (2) of Art 29 shall prevent the State from making any special provisions for the advancement of any socially and educationally backward classes of citizens or for the Scheduled Castes and the Scheduled Tribes." (Art 15(4).

This clause enables the State to make reservations for the weaker sections for admission to the educational institutions. As various States started making indiscriminates reservations with a view to getting political support, the Supreme Court in one case[2] laid down that such reservations cannot be more than 50%. The Mandal Commission has also laid down that maximum percentage of reservation can be 50% only.

The Supreme Court in a number of cases decided the nature and extent of reservations permitted under the Constitution. These cases relate both to reservations in educational institutions and for employment. One of the important cases decided on reservation is a case from the State of Kerala. The Supreme Court laid down that the total number of seats reserved for weaker sections must be so allotted to students from these communities as to ensure that the benefits of reservation are really enjoyed by those who are unprivileged even among the unprivileged classes. It has laid down the means-cum-caste/community test indicative of social and educational backwardness by which persons above a certain income otherwise qualified are barred.[3]

Reservation of seats in professional colleges is not a mere legal problem. It is a social problem also. Our experience during the last thirty eight years leads us to certain conclusions. They appear to be as follows :

(1) The benefits of reservations have been monopolised by the advanced sections of the S.C., S.T. and other backward class groups known as neo-Brahmins among such classes. This has made it impossible for the weaker sections among the S.C., S.T. and other backward classes to derive benefits of reservations. Hence, it is recommended that all States should adopt the principle adopted by Kerala State. Then alone, social justice would be achieved. Unfortunately some of my friends from these classes do not support this view.

(2) It is necessary to lay down a time limit for the reservations to continue. The Supreme Court has suggested in 1985 a time limit of 15 more years.

It may be mentioned here that the constitution of the United States of America does not make a specific provision for reservation of seats in educational institutions for the unprivileged (Blacks in the U.S.A.) However, the University of California made a rule under which some seats in medical faculty were reserved for the blacks. This provision was challenged by a white student, Bakke, by name, who was not admitted as there was no seat available. The Supreme Court of the U.S.A. decided, that race could be considered as a plus factor though not as the determining factor in admission. According to the Court 'race' is a reasonable and legitimate basis for State action. The Court, however, struck down, the medical school admission policy as a denial of Bakke's right to equal protection of law under the Civil Rights Act and the Fourteenth Amendment of the U.S. Constitution. In the U.S.A. this case is known as a case of affirmative action.[4]

The Indian Constitution, has made specific provisions for educational opportunities, for the weaker sections. The framers of the Constitution studied Indian social structure and advisedly made these special provisions. The implementation of these provisions undoubtedly helped the weaker sections and a kind of social transformation is seen in Indian society.

Religious Instructions

Art 28 lays down provisions regarding religious instructions in educational institutions. They are as follows :

(1) No religious instructions shall be provided in any educational institution wholly maintained out of the State funds.

(2) Nothing in clause (1) shall apply to any educational institution which is administered by the State, but has been established under any endowment or trust which requires that religious instructions shall be imparted in such institution.

(3) No person attending any educational institution, recognised by the State or receiving aid out of State funds shall be required to take part in any religious instruction that may be imparted in such institution or in any premises attached thereto unless such person or, if such person is a minor, his guardian has given his assent thereto.

Though religious instructions are prohibited in any educational institution maintained wholly out of State funds provisions in the Guru Nanak University Act for study and research on the life and teachings of Guru Nanak and their impact in the context of the Indian and world civilization were upheld by the Supreme Court on the ground that the provisions aim at an academic study of the life and teachings of Guru Nanak.[5]

Education and Legislative Competence

Indian Constitution is based on the principle of the 'Rule of Law' Hence the framers of the Constitution have provided for legislation on education by competent legislature. The competence of the legislature is laid down in the Seventh Schedule of the Constitution which contains three lists of the entries on legislation. The lists are (1) the Union list : It contains all matters on which Parliament alone has power to make laws; (2) Concurrent list : This list contains matters on which both the Parliament and State legislatures are competent to pass laws; and (3) the State list : It contains matters on which ordinarily the state legislatures may pass laws. As regards education, following provisions are made :

Union List—Entries are

Entry 63 — "The Institutions known at the commencement of the Constitution as the Banaras Hindu University, the Aligarh Muslim University and the Delhi University, the University established in pursuance of Art 371-E, any other institution declared by Parliament by law to be an institution of national importance."

Various Universities like Jawaharlal Nehru University, are established by Parliament under this entry.

Entry 64 — "Institutions for scientific or technical education, financed by the Government of India wholly or in part and declared by Parliament by law to be institution of national importance."

Various IITs are established by Parliament under this entry.

Entry 65 — Union agencies and institutions for :

(a) professional, vocational or technical training including training of police officers:
(b) the promotion of special studies of research, or;
(c) scientific or technical assistance in the investigation or detection of crime.

Entry 66 — "Co-ordination and determination of standards in institutions for higher education or research and scientific and technical institutions."

The University Grants Commission is established under this entry.

Entry 67 — Ancient and historical monuments and records and archaeological sites and remains (declared by or under the law made by Parliament) to be of national importance.

Concurrent List

Entry 25 — Education, including technical education, medical education and universities subject to provision 63, 64, 65 and 66 of the Union list, vocational and technical training of labour.

Entry 26 — Legal, medical and other professions.

State legislatures establish universities under entry 25. But these universities are also controlled by the Union List entries mentioned above. Hence every legislation seeking to establish a State University is required to be cleared by the Union Government under the provisions of the Constitution.

Medium of Instruction

There is no specific provision in the Constitution relating to medium of instruction. But, the Supreme Court laid down rules regarding the medium of instruction in institutions of higher education, while deciding cases on education. The law laid down by the Supreme Court becomes a kind of binding law. The Supreme Court laid down that **the universities cannot lay down the regional language or languages as the sole medium of instruction.**[6]

Education of Minorities

The Constitution makes special provisions for education of minorities. They are :

(1) Protection of interests of minorities :

(i) Any section of citizens residing in the territory of India or any part thereof having a distinct language, script or culture of its own shall have the right to conserve the same.

(ii) No citizen shall be denied admission into any educational institution maintained by the State or receiving aid out of State funds on grounds only of religion, race, caste, language or any of them (Art 29).

(2) Right of minorities to establish and administer educational institutions

(i) All minorities, whether based on religion or language shall have the right to establish and administer educational institutions of their choice.

(iA) In making any law providing for the compulsory acquisition of any property of an educational institution established and administered by minorities, referred to in clause (1), the State shall ensure that the amount fixed by or determined under such law for the acquisition of such property is such as would not restrict or abrogate the right guaranteed under that clause.

(ii) The State shall not in granting aid to educational institutions, discriminate against any educational institution on the ground that it is under the management of a minority whether based on religion or language. (Art 30).

Admission to Educational Institutions

Art 29(2) lays down that no citizen of India can be denied admission into any educational institution, which is either maintained by the State (such as Government institutions) or which is receiving aid out of State funds (such as grant-in-aid institutions) on ground only of religion, race, caste, language or any one of them. Hence, no educational institution falling under the above category can refuse admission to any citizen on ground of religion, race, caste or language. It is to be noted sex is not mentioned in the above grounds. Hence, it appears that admission on the ground of sex may be denied if such an action is not violative of other provisions of the Constitution. In this connection, it may be noted that Art 15(3) authorises the State to make special provisions for women and children. Hence, separate educational institutions for women are constitutional.

Minority Educational Institutions

Art 29(1) enables minorities to establish institutions to preserve their language, script or culture. Art 30 confers an absolute rights on minorities to establish and administer educational institutions of their choice. This right is conferred in absolute terms. However, the Supreme Court in a series of judgments has laid down that regulatory measures made by the relevant authorities would be constitutional. As a result of various judgments following are the rules that are binding on minority institutions.

(1) Right to administer is not a right to maladminister. Hence, universities can lay down qualifications of teachers, courses, curricula, conditions regarding health of students, etc.

(2) The management must be efficient. The State can make regulatory measures to promote efficiency and excellence of educational standards and issue guidelines for the purpose of ensuring the security of service of the teachers or other employees of the institution.

(3) Earlier, the Supreme Court had held that teachers in minority institutions had no right to approach an Arbitration Tribunal. However in a later judgment the Supreme Court laid down that even in case of minority institutions teachers have a right to approach the Arbitration Tribunal in cases of removal from service, dismissal or reduction in rank.[7]

(4) A minority institution cannot claim immunity from general law of the land such as contract law, labour law, Industrial Disputes Act.

(5) Minority institutions which seek either recognition or aid from the State are subject to regulatory provisions imposed by the State. Under such provisions if the State is authorised to take over management even of minority educational institution, the State can do so.[8]

The Supreme Court also laid down criteria for determining a minority with reference to educational institution.

(1) A linguistic minority for the purpose of Art 30(1) is one which at least must have a separate spoken language.

(2) Religious or linguistic minorities are to be determined only in relation to particular legislation which is challenged before the Court. It must be less than 50% of the population.

The Court also laid down the following principles :

(1) A University cannot impose on such minorities a medium of instruction and script not their own.

(2) No linguistic minority can claim that the University shall conduct its examination in the language or script which the institution has the right to adopt.

(3) A minority institution has no right to get affiliation to the University. It can get affiliation only when it fulfils the regulations of the University consistent with other rights of minority educational institutions.

It may be stated that in earlier years the Supreme Court treated cases of minority educational institutions in a conservative manner. Later on, however, it realised that minority institution must also fulfil the obligations cast on other educational institutions. Too much protection to minorities might create a sense of alertness in the minds of minorities. Such an attitude is dangerous to national integration. Referring to religious minorities in the United States of America, Justice Frankfurter who himself belonged to a religious minority (Jew) in the USA observed in one case as follows :

> "Religion is outside the sphere of political government. This does not mean that all matters on which religious organisations or beliefs may pronounce are outside the sphere of government. Were this so, instead of separation of church and State, there would be subordination of the State on any matter deemed within the sovereignity of the religious conscience......That which to the majority may seem essential for the welfare of the state may offend the conscience of a minority. But so long as no inroads are made upon the actual exercise of religion by minority, to deny political power of the majority to enact laws concerned with civil matters simply because they offend the conscience of the minority, really means that the conscience of a minority is more sacred and more enshrined in the Constitution than the conscience of a majority."[9] □

I hope this advice is remembered by Government of India and various State Governments.

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The Aims of Education

"The chief aim of education should be the endeavour to make one see and imagine the world in an objective manner as it really is. It should not merely be seen through the distorting medium of personal desire", said Hon'ble Justice S. Mohan, Judge of the Madras High Court. Justice Mohan was delivering the Convocation Address at the Fifth Convocation of the Bharathidasan University. "Education must shift from instruction; it must shift from mere learning. It must induce probing and exploration. It is education which has assisted the process of development of human society. It alone has been instrumental in making the people to meet the challenges wrought by the ever-changing situations", he added. Excerpts

Education means 'enlightenment'. It involves the conservation and the communication of existing knowledge. It is equally concerned with the advancement of knowledge in new directions. Knowledge cannot remain static. It must be ever advancing. Perhaps, one has to race with it as otherwise, it will leave us behind limping.

The application of knowledge to human ends involves the arts of culture, progress, development and peace. Education. therefore, has to be regarded as an integral whole.

As Joseph Addison said :

> "What sculpture is to a block of marble, education is to the human soul. The philosopher, the saint, the hero, the wise, and the good, or the great, very often lie hid and concealed in a plebeian, which a proper education might have disinterred and brought to light."

It is this light which the University has to kindle in the hearts of the modern youth.

The chief aim of education should be the endeavour to make one see and imagine the world in an objective manner as it really is. It should not merely be seen through the distorting medium of personal desire. The classroom today is in a vital struggle for survival with the immensely persuasive outside world created by the new educational and technological media. Therefore, education must shift from instruction; it must shift from mere learning. It must induce probing and exploration. It is education which has assisted the process of development of human society. It alone has been instrumental in making the people to meet the challenges wrought by the ever-changing situations.

There is a general feeling today that education which is so vital and purposeful has somehow not subserved the goals which our nation wants to reach. The real purpose of education is, to make the individual blossom to build a society of men and women of character. Such men and women who would rather think of the society, of the nation than the individual self. No doubt one has to develop intelligence, honesty and fearlessness. But those are merely individual attributes. But these individual qualities must be so tempered with a genuine desire to help the fellow-beings. The objective of education should, therefore be to strive to attain this goal, by a process of integration of individual and the society, the individual and the nation. By no means, hence live in cloistered seclusion. As Kant put it :

> "Man can only become man by education. He is merely what education makes of him."

"Teach me to feel another's woe" are the celebrated words of Alexander Pope. Adopt it as your life's motto.

Never has our great country been beset with so many problems as in the recent past. Some of these problems at least could be solved if the University education is directed in the proper course. Apart from human excellence, the students should be prepared to face the tasks of tomorrow when they go out of the portals of their educational institutions as citizens of this country to take active part in their future life. Therefore, the University education must make the students aware of the changing social and economic order of our country.

The position of the majority of the people of India today could amply be described in the words of Longfellow :

Tell me not in mournful numbers
Life is 'but an empty dream !'

For the soul is dead that slumbers,
And things are not what they seem.

You must feel for the millions of men and women sunken for ever in poverty and ignorance. To quote Vivekananda :

> Feel, therefore, my would-be reformers, my would-be patriots ! Do you feel ? Do you feel that millions and millions

> of the descendants of gods and of sages have become next-door neighbours to brutes? Do you feel that millions are starving today, and millions have been starving for ages? Do you feel that ignorance has come over the land as a dark cloud? Does it make you restless? Does it make you sleepless? Has it gone into your blood, coursing through your veins, becoming consonant with your heart-beats? Has it made you almost mad?

You must imbibe the spirit of these immortal words. India will be raised not with the power of flesh but with the power of spirit. With such a spirit alone, you will be able to create a new social order. The attempt to create a new social order immediately raises the question of national integration. What exactly is the underlying concept of national integration? India is a country consisting of multitude of people scattered over different regions of diverse culture speaking different languages. Yet, this diversity is the one that makes it all the more challenging and all the more fascinating. The very Constitution which we gave unto ourselves probably proclaims this underlying spirit. Notwithstanding the fact that the thinking and the horizon may be confined to the region in which one lives, yet, there is a paramount duty to owe greater and unflinching loyalty to India. Otherwise, national integration in true sense will never grow in this soil. As Pandit Jawaharlal Nehru, the illustrious Prime Minister of India, once remarked:

> "This is an India, but where are the Indians"?

That question has assumed great relevancy and perhaps more poignancy today. It is, therefore, imperative for us to resolve that to the best of our ability, each one of us will promote and develop the concept that India is one country irrespective of the State to which we belong and what tongue we speak. Let the oneness of India pervade our spirit for ever. Let us unfailingly feel as Indians first, Indians second and Indians last.

Another concept of national integration is secularism. This concept is a dynamic one. It has flowered from the philosophy of rationalism. It is progressive in character, modern and scientific in outlook. It abhors castes. It is these loyalties which are parochial that constitute great hindrances and obstacles to the acceptance of the concept of national integration. The University community must start a crusade against these narrow loyalties that are apt to develop in the young minds.

The illustrious poet Bharathidasan says:

> "There prevails utter darkness in the world.
> If one who to think in terms of caste."

How can we be really advancing toward the 21st Century with this cribbed thinking and crippled outlook?

Indian secularism equally abhors untouchability in any form. Our Constitution in no uncertain terms under Article 17 proudly proclaims:

> "Untouchability" is abolished and its practice in any form is forbidden. The enforcement of any disability arising out of "Untouchability" shall be an offence punishable in accordance with law."

But by a mere law alone, we cannot bring about the change of hearts. It is by moulding the thinking and making the heart to feel for those unfortunate and the lowliest of the lowly, we make ourselves worthy of human existence. Does not Thirukkural teach us:

> When by birth all are equal, where then is the necessity to tread a path so alien to our culture and our ancient heritage? Therefore, you must make your life's mission to fight against every form of social injustice never failing to remember that Mahatma Gandhi, the father of the Nation, whom Jawaharlal Nehru aptly described:

> "Where he walked, was a hallowed ground where he sat was a temple."

Lived and died for this noble cause of eradication of untouchability. Therefore, feel from the heart that you will never think in terms of castes, language or religion. Let your concept be widened, thinking of oneness of humanity and oneness of this country.

Close on the heels, every endeavour must be made to abolish the economic imbalances. To quote Vivekananda again:

> "Worn-out huts by the very side of palaces, piles of refuse in the near proximity of temples, the poor clad with only a little loin-cloth, walking by the gorgeously dressed, the pitiful gaze of lustreless eyes of the hunger-striken at the well-fed and the amply provided: This is our native land!"

This sorry spectacle continues even today. It is for the educated community like you to remove such economic disparity and make them live. Presently, the poor, the hungry illiterate masses of India do not live but merely exist. For long they have remained patient but the society cannot count on their patience for too long.

The day of the silent poor is over. There is anger and bitterness. Occasionally it may be even irrational. Yet, even if surges of rage that grip the oppressed, turn emotional solutions will become complicated. They are evidence that resignation and apathy are finished. The University community, therefore, must find adequate, satisfactory solution to the problem of poverty and unemployment. It is by making these poor and the unfortunate think that they are cared for, that they form part of the society and they have every right to live, liberty and happiness, we will be able to make our democracy function in its true sense.

To quote Saul David Alinsky :

> There can be no democracy unless it is a dynamic democracy. When our people cease to participate—to have a place in the sun—then all of us will wither in the darkness of decadence. All of us will become mute, demoralized, lost souls.

Our education therefore should verily make us a new people, melting and moulding and remaking us into a new nation. The proper inspiration behind our educational effort should be this great and worthy objective; to make education the means of creating a new India, inhabited by a people who have undergone such a baptism of rebirth. There are of course formidable difficulties, but these must serve as challenges provoking an adequate response instead of daunting and defeating us even before the trial begins. There is no need for despair; for the darkest hour is only sixty minutes.

Bishop Burgmann said over many years ago :

> "......a nation's education is simply its vigorous pulsating life and energy seeking knowledge and skill, and feeling after wisdom and understanding. A nation grows as the quality of its citizens increases, and quality is seen in character. Character grows out of the discipline of knowledge and the refinement of love. The growth of a nation, then, is fundamentally an educational process. Education is what fashions a satisfactory pattern for a people's energy. and calls forth that energy to the uttermost; it is what gives form to a people's spirit and finds in spirit the power of ceaseless creation".

For such challenging tasks, we need ideal teachers which should be the equal concern of the University. How else could one describe an ideal teacher than in the words of Dr. James H. Cousins :

> "The great ideal the teacher should seek to achieve is the awakening of the soul to a realisation of all that is highest in itself and to the expression of it in service.........To touch the deepest chords of life and ring out the music of the soul, that is the work of a supreme arist whose own soul is in tune with the great vibrating life around........The great underlying principle of true and therefore spiritual education is the recognition of certain great energies in the human soul, which, if roused and awakened, would set free a spiritual power which nothing can resist".

Therefore, let this University community, the learned and the learning, the teacher and the taught bring about an atmosphere that will make India, that great country which Mahatma Gandhi dreamt. If this University could produce a band of young men and women fired with the zeal of sacrifice, fortified with eternal faith in the uplift of humanity and nerved to lion's courage by their sympathy for the poor and the fallen and the downtrodden and if they go over the length and breadth of this land, preaching :

the gospel of national integration,
the gospel of help,
the gospel of social raising up,
the gospel of equality.

I am sure the University will prove its glorious existence.

Taking cue from the motto of the University, may I now quote Bharathidasan :

Let us toss up that world
Like dust caught in the wild wind;
That world ridden with caste, superstition and acrimony.
That world let us destroy and build a new world.

True to its motto, may this University be a field of battle for the establishment of those ideas than a mere tower of contemplation.

May I now propose a toast :

May you have

enough happiness to keep you sweet;
enough trials to keep you strong;
enough sorrow to keep you human;
enough hope to keep you happy;
enough failure to keep you humble
enough success to keep you eagre;
enough friends to give you comfort;
enough faith and courage in yourself,
your future and your country to banish depression;
enough wealth to meet your needs;
enough determination to make each day a better day than yesterday.

IV IP Desai Memorial Lecture

'Social movements are not idiosyncratic events, but are a recurrent phenomenon', said Prof. M.S. Gore, former Director of Tata Institute of Social Sciences and ex-Vice Chancellor of Bombay University while delivering the Fourth I.P. Desai Memorial Lecture at the Centre for Social Studies, Surat. Social movements, he pointed out, challenge society's techno-economic and social structures. Prof. Gore emphasised the relevance of the contributions of Robert Merton, an American Sociologist, belonging to the 'functionalist' school of thought and said some western concepts could be used to understand our social movements.

After providing a general analytical framework of social movements most of which only achieve a part of their goals, Prof. Gore focussed on the non-Brahmin movement of Maharashtra between 1873 and 1930. This movement was a protest on the part of the non-Brahmins against the domination of the Brahmin castes. Beginning as a protest against religious and socio-economic domination of Brahmins, the movement, later on, stressed the protection and promotion of the political rights of the non-Brahmins. The leaders of this movement were drawn from the urban educated class largely belonging to the Mali caste. Jyotirao Phule the most articulate among them, became the leader of non-Brahmin movement. In the first phase of his activist life, Phule's approach was reformistic. In the second rebellious phase, he turned to militant anti-Brahminism. Phule was committed to certain ways of life. The Brahmins were not needed to conduct various rites in his scheme of social order. He tried to provide a separate religious identity for the non-Brahmins. For this purpose, he developed an ideology pointing out that all the non-Brahmins were non-Aryans.

However, after Phule's departure from the scene, the non-Brahmin movement shifted its emphasis as the upper castes among the non-Brahmins, viz.. the Marathas, the Jains and Lingayats captured the leadership. Political rather than cultural and social motives became important particularly after 1915. 'The non-Brahmin movement in Maharashtra', according to Prof. Gore, 'succeeded in expanding the social, economic and political opportunities at least for the upper strata of non-Brahmins.

During the discussion, several questions were raised, regarding the usefulness and validity of the functionalist approach, the relation between the structure of values and social stratification, the class nature of the non-Brahmin movement, especially in rural Maharashtra. In response, Prof. Gore candidly suggested the need to critically use functionalism in assessing the role and character of any social movement.

Prof. Jan Breman, a distinguished scholar of the University of Amsterdam, Netherlands presided over the function. Prof. S.P. Punalekar, Director, Centre for Social Siudies, explained the objectives of the lecture series. The I.P. Desai Memorial Lectures are held annually at the Centre for Social Studies, Surat.

IISc Develops Birth Control Vaccine for Men

The scientists at the Indian Institute of Science, Bangalore have developed India's first birth control vaccine for men. The vaccine ready for final clinical trials, has been proved effective on animals. It has also been tested for toxicity by the Lucknow-based. Central Drug Research Institute (CDRI) and by a group in the US. This was stated by Dr. N.R. Moudgal, while delivering a platinum jubilee lecture at the "Zoology, Entomology and Fisheries' Section of the Indian Science Congress recently concluded at Madurai.

Dr. Moudgal said a birth control vaccine for men was one which had no effect on libido but brought about a reduction in quality and quantum of sperm produced. The vaccine seemed to meet this requirement in tests conducted so far.

Dr. Moudgal said the studies which spanned over almost two decades involved blocking of a testicular hormone called Follicular Stimulating Hormone (FSH) using an antibody of FSH. Tests first in rats and then in bonnet monkeys showed that blocking of FSH resulted in drop in sperm count and its quality. Administration of the vaccine also led to absence of spermogenic activity.

An important feature of the vaccine was its reversible action, During the first year, the subjects were given three to four injections and two in the second year. Restoration rate of fertility was about 90 per cent in primate studies. The vaccine had been found to cause infertility in actual mating experiments in bonnet monkeys. The formulation of the vaccine was based on 'ovine fsh' and a substance called 'alugel', which was commercially available, Dr. Moudgal added.

Centre for Conservation Monitoring

A national centre for conservation monitoring and a national board for biological diversity are to be set up during the Eighth Plan period. This was revealed by Dr. A Verma, President of the Agricultural Sciences Section at the Indian Science Congress held at Madurai recently.

The national centre will collect and analyse data relating to plant, animal and forest resources from various sources like the Bureau of Plant Genetic Resources and the Botanical and Zoological Survey of India. It will have its own network for monitoring and issue warnings about endangered plants.

India's manpower base in agricultural sciences will have to be strengthened and modernised to enable the country to achieve the 250 million tonne foodgrain production target by the end of the century, Dr. Verma said.

Centre for Development of Instrument Technology

The Department of Science and Technology proposes to set up a centre for the development of instrument technology for the indigenous fabrication of instruments for research and teaching. Specially selected entrepreneurs will be attached to these centres for exposure to instrument technology design, development and manufacture. These entrepreneurs will later be assisted to set up manufacturing units under the department's existing schemes.

Chair for Industry

The Indian Institute of Technology (IIT), Madras, will soon have a chair for industry. It will be the first of its kind in the five prestigious IITs in the country. An indication to this effect emerged at the annual get-together of the industrial associates of the IIT, organised jointly by the IIT and the Confederation of Engineering Industry.

The decision to have a chair is aimed at achieving three significant objectives. First, it will help in forging an effective industry-institution link, which is woefully lacking today. Second, it will act as a check on the problem of "brain drain" by ensuring that students passing out of the IITs have their scientific knowledge backed up by an insight into the practical needs of industry, through a suitable reorientation of the curriculum. Third, once the industry-institution link is established, the present tendency to make the IITs spread their efforts thin by undertaking a wide spectrum of activities will be avoided.

It is revealed that the industry will nominate a visiting professor for the proposed "industry chair". A corpus of Rs. 12 lakhs is sought to be created for the purpose for funding the activities initiated under the programme, besides meeting the emoluments of the visiting professor. He will be coordinating with the IIT's authorities in the reorientation of curriculum. Since the amount proposed is large, it is possible that it will be raised by a group of industries.

Institute of Ichthyology

An Institute of Ichthyology is likely to be set up in Madras soon. According to the President of the Indian Society of Ichthyology, Dr. A.G.K. Menon, the proposed institute will be affiliated to Madras and Anna universities for doctoral and post-doctoral research in ichthyology (studies on fish).

Dr. Menon said that the society had already approached the Tamil Nadu Government for land, and the Department of Science and Technology for a grant of Rs. 15 lakh for the institute.

ISM Hosts IUNYFEST '89

Indian School of Mines, Dhanbad will host the Inter-University National Youth Festival (IUNYFEST '89) from January 31 to February 4, 1989. Over 500 students from 61 Universities from all over the country are expected to participate.

The IUNYFEST is being sponsored by Association of Indian Universities and Dept. of Sports and Youth Affairs, Govt. of India. The events will include music, drama, literary events, theatrical performances and fine arts along with informal events adding to the festive fervour to liven up the spirit of the participants. The festival, it is expected will be the quintessence of artistic brilliance, cultural elegance, literary versatility and theatrical competence through a spirit of unity, goodwill and healthy competition in the five-day events.

We Congratulate . . .

1. Prof. Yash Pal, Chairman, University Grants Commission who has been elected General President of the Indian Science Congress Association for 1988-89 and the 77th Session of the Science Congress to be held at Cochin.

2. Dr. M. Lakshmanan, Coordinator and Head of the School of Biological Sciences, Madurai Kamaraj University who has been appointed Vice-Chancellor of the University.

3. Professor Shamim Jairaj Puri, Chairman of the Department of Zoology, Aligarh Muslim University, who has been appointed Director, Zoological Survey of India.

News from Agril. Varsities

Prospects for White Revolution

Dr. R. M. Acharya, Deputy Director-General (Animal Sciences) of the Indian Council of Agricultural Research (ICAR) observed that there was a wide difference in the level of annual milk production of dairy animals in different states, ranging from 208 kg in Orissa to 1752 kg in Punjab and the level of milk production of dairy animals has also resulted in variable daily per capita availability of milk in these states ranging from 39 g in Orissa to 728 g in Punjab. Dr. Acharya was delivering a lecture on "Status and Prospects for the White Revolution" under the National Symposium on Indian Agriculture in the year 2000 and beyond organised by the Punjab Agricultural University (PAU). He said that various dairy development programmes undertaken in the country so far have resulted in an increase in milk production from 20 million tonnes in 1971 to 46 million tonnes in 1987-88.

Dr. Acharya said that major increase in milk production has been due to increase in the population of buffaloes and production of crossbred cows. He emphasized the need for exploiting buffalo both as a milk and meat animal. He regretted that very superior germplasm of buffaloes was being lost in the metropolitan cities due to the slaughter of the high-yielding buffaloes and the death of their young ones due to neglect. He proposed that the ovaries of such high-yielding animals may be collected from the slaughter houses and used for oocyte culture and *in vitro* fertilization for implanting these embryos in the low yielding buffaloes. This will help in the salvation of superior germplasm. He further said that field progeny testing for the evaluation of the dairy bulls also needed to be strengthened. There was also need for developing high-yielding, nutritious, input responsive and disease resistant varieties of fodder crops and for increasing the area under such fodder crops to meet the fodder requirement of high-yielding dairy animals. Efforts should also be made to supplement the feed resources by using the agricultural crop residues, agro-industrial by-products and other non-conventional feed resources. There was need for developing a more effective disease surveillance and monitor systems for forecasting and forewarning the farmers about the outbreak of diseases. He also emphasized that cheaper and more effective diagnostic aids and vaccines utilizing newer biotechnologies should be developed.

Dr. Sukhdev Singh, Vice-Chancellor of the PAU, who presided over the function emphasized that the economic returns from buffaloes can be increased by rearing and selling the surplus male calves as meat animals. This would help in making buffalo farming a more profitable livestock enterprise.

Faculty Club at PAU

Dr. N.S. Randhawa, Director-General of the Indian Council of Agricultural Research (ICAR) performed the clod-breaking ceremony of the building of faculty club-cum-guest house at the Punjab Agricultural University recently. This building will cost Rs. 25 lakh of which Rs. 20 lakh has already been provided by the ICAR.

Speaking on the occasion, Dr. Randhawa said that agricultural museums should be built at the Agricultural Universities to teach the students about the development of agriculture.

News from Abroad

M.A. in Modern International Studies

The University of Leeds in U.K. will introduce from October, 1989 a new one-year M.A. in Modern International Studies. The course is being launched primarily for students from abroad looking for a career in the civil or diplomatic services, in commerce or banking, in service officers whose jobs require a thorough grounding in modern international affairs, and for students who intend going in for M. Phil. or Ph.D. degrees.

The course comprises three elements—1. A core paper compulsory for all students in contemporary international relations (1954 to the present day); 2. An optional paper chosen from a wide range including international law, economic history, diplomatic history, the affairs of many parts of the world including Russia, and Eastern Europe, China, Japan, Canada, Southern Africa; and a dissertation of 15,000 words, to be based upon original sources. The subject may derive from the compulsory paper or one of the options or may stand quite independently of them. The course begins on 1st October each year and is completed the following July.

All students admitted to the course will be eligible for the university's scholarships of £ 1400 per annum which are restricted to overseas students. There is also a likelihood of five additional scholarships of £ 1000 per annum restricted to the new course being available. The university also reserves a good deal of accommodation for its overseas students. Further information and application forms can be obtained from the Course Director—Professor David Dilks, School of History, The University, LEEDS LS2 9JT.

Universities in Developing Areas

The Second International Symposium on the Role of Universities in Developing Areas has been announced to be held at the Hubert H. Humphrey Institute for Social Ecology, Ben-Gurion University of the Negev, Beer-Sheva, Israel during late December, 1989. The symposium will be co-sponsored by the University of California, Los Angeles and Ben-Gurion University Academic Cooperation Programme. Major themes to be discussed include :

(a) the role of the university in the national development;

(b) the role of the university in the urban environment, national centers and peripheries;

(c) the role of the university in professional training and development;

(d) the role of research institutes;

(e) the role of the university in technological and scientific developing areas; and

(f) policies, objectives and conflicts of higher education in developing areas;

Further information can be had from Professor Samuel Aroni, GSAUP, UCLA, Los Angeles, California 90024.

Essay Contest on Eradicating Poverty

India Chapter of Poverty Eradication Foundation has sponsored an award programme to invite and honour distinguished papers on "Poverty Eradication in India". The papers must cover the following topics, the maximum merit points assigned are indicated against each of them : (i) Definition of Poverty (10); (ii) Magnitude and Trends of Poverty (5); (iii) Causes of Poverty (7); (iv) Effects of Poverty (5); (v) Poverty Eradication Efforts and Measures of Effectiveness (15); (vi) Political Aspects of Poverty (5); (vii) Socio-economic Aspects of Poverty (5); (viii) Cultural Aspects of Poverty (5); (ix) Recommended Plan and Programme for Poverty Eradication (30); (x) Discussion of Any Other Aspects of Poverty (10); and (xi) Summary (3). Participants scoring a minimum of 70% of the merit points will be eligible for the award.

There are three prizes of $2500, $1500 and $500 to be awarded to those adjudged Ist, IInd and IIIrd respectively. In addition there will be three merit awards with a prize of $100 each. Each of the prize winners will also be awarded a Certificate of Recognition.

Papers must be in the English language. Last date of receipt of the papers is 15th May, 1989 and awards will be announced by 31st July, 1989. For further details, please write to: Poverty Eradication Foundation : India Chapter, 164 Canyon Vista Place, Danville, California 94526, U.S.A.

SPORTS NEWS

Inter-University Gymnastics & Malkhamb

Kakatiya University hosted the All India Inter-University Gymnastics (Men and Women) and Malkhamb championships from January 10 to 14.

35 teams including 9 women teams from all over the country participated in gymnastics while 16 in Malkhamb.

Prof. Jafar Nizam, Vice-Chancellor, Kakatiya University gave away the prizes on conclusion of the championships. Mr. K.R.V. Krishna Rao, Secretary of the sports Board, presented the report. Prof. V. Bhasker Rao, Chairman of the Tournaments Committee presided.

RESULTS

GYMNASTICS

Men

All Round Championship

P. Ravinder Kumar (Kakatiya); Chandrasekhar Patil (Bombay); Shatrumjay M. Kote (Osmania)

Team Championship

Jiwaji; Guru Nanak Dev; Delhi

Individual Championship (event-wise)

Pomelled horse : Chandrasekhar Patil (Bombay); Sanjay Gadhwe (Amaravati); Neeraj Sood (Guru Nanak Dev)

Roman Rings : P. Ravinder Kumar (Kakatiya); Chandrasekhar Patil (Bombay); Pavan Singhal (Vikram).

Vaulting Horse : Chandrasekhar (Mysore); Sanjay Gadhwe (Amaravati); Mukhesh (Delhi).

Parallel Bar : Lalit Sharma (Jiwaji); Neeraj Sood (Guru Nanak Dev); Kamal Kishore (Guru Nanak Dev).

Horizontal Bar : P. Ravinder Kumar (Kakatiya); Shatrumjay M.

Kote (Osmania); Manohar Singh Nagar (Jiwaji).

Floor Exercises : Chandrasekhar (Mysore); Mukhesh (Delhi); Sudheer Devdas (Mysore).

Women

All-round Championship

Jayasree Makhwana (South Gujarat); S. Indira (Kakatiya); Anju Sharma (Kurukshetra).

Individual Championship (event-wise)

Vaulting horse : Gouri Roy (Jiwaji); Deepali Athleye (Bombay); Anju Sharma (Kurukshetra).

Balancing Beam : S. Indira (Kakatiya); Jayasree Makhwana (South Gujarat); Gouri Roy (Jiwaji)

Uneven Bar: Gouri Roy (Jiwaji); Mehraj Banu (Kurukshetra); Jayasree Makhwana (South Gujarat).

Floor Exercises : S. India (Kakatiya); Anju Sharma (Kurukshetra); Jayasree Makhwana (South Gujarat).

MALKHAMB

Individual Championship

Yogesh Yeole (Pune); Shashank Holker (Pune); Mahesh Atale (Bombay).

Team Championship

Pune; Bombay; Shivaji.

Gold medal, Silver medal and Bronze medal were awarded to winners of the first place, second place and third place respectively.

Sports Hostel Opened

The Sports Authority of India (SAI) under the national coaching scheme has opened a sports hostel at the Yuba Bharati Krirangan, Calcutta to accommodate 50 men and 25 women.

The hostel, besides providing free accommodation to promising sports persons who have achieved something at the national and international levels, or potential youngsters, will also supply free balanced meals.

News from UGC

INSAT-1B Programme of UGC

Between 1st February to 15th Feb., 1989 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV Network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

1.2.89

"Factories of the Future"
"In Search of the Past—IV"
"Plants in Our Neighbourhood—V"

2.2.89

"Mecaulay's Influence on Indian Education"
"Daccan Traps—Archives of Ancient Volcanism"
"Understanding Poetry—II"

3.2.89

"Algebraic Structure—I Theory of Sets"
"In Search of Ethnic Dimension—II"

4.2.89

"Ready, Get Set, Go"
"Noh Drama"
"The Secrets of Stradivarius"

5.2.89

No Telecast

6.2.89

"Principles of Phase Stability"
"Small Scale Industry—II"

7.2.89

"Chemistry of Dyes"
"Superstitious ?—Let us be Rational"
"Isolation of Lymphocytes"

8.2.89

"High Speed Elevators for High Rise Buildings"
"In Search of the Past—Greece Golden Age and Decline"
"Plants in Our Neighbourhood-VI"

9.2.89

"Signals"
"Lucoce"
"Understanding Poetry—III"

10.2.89

"Vega is Flying to the Past"
"Folklore & Folkloristics—III"
"Preserving the Ecosystem"

11.2.89

"Edison Programme"
"Handicrafts of Andhra Prad.—I Art of Bidri Ware"
"Images".

12.2.89

No Telecast

13.2.89

"Nuclear Energy in India"
"Monetary Policy in India"

14.2.89

"Chemistry of Man Made Fibres—I"
"Access to Reality : Educational Technology"
"Smoking and Health"

15.2.89

"In Search of the Past—Ancient Rome"
"Aetiology & Detection of Vitamin Deficiency"

Fellowships for French Studies

The University Grants Commission (UGC) has invited nominations from universities by February 20 of teachers of French language and literature of the universities and colleges for the award of 10 fellowships in French studies in France.

These fellowships include post doctoral studies and are offered for teachers' refresher course, summer training course, short-term fellowships for Ph.D. and high-level research and to collect documentation, unavailable in India, for a Ph.D. thesis.

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month', while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research Scholars and students of education are welcome to use these resources. The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Library Science

1. Chandra, Harish. *Rural information system : Design and development*. Jiwaji. Dr. S.M. Tripathi, Prof. and Head, Department of Library and Information Science, Jiwaji University, Gwalior.

2. Kulwant Singh. *Expansion of Dewey's Decimal Classification Scheme 20th edition for Punjabi language and literature, and Sikh religion*. Panjab. Dr. H.R. Chopra, Department of Library Science, Panjab University, Chandigarh.

3. Kumar, Satyendra. *Design of an online information retrieval system for meeting research requirements of health scientists*. Jiwaji Dr. R. Satyanarayana.

4. Moni D. *Information needs of rubber scientists in India: A study*. Kerala. Dr. M. Bavakutty, University Librarian, University of Calicut, Calicut.

5. Sasikala, C. *Industrial libraries and information centres in Andhra Pradesh : A study*. Andhra. Prof. K. Siva Reddy, Department of Library and Information Science, Andhra University, Waltair.

6. Tiwari, Brajesh. *Vargikaran pradaliyan : Udabhav, vikas aur sambhavanayen*. Jiwaji. Dr S.M. Tripathi, Prof. and Head, Department of Library and Information Science, Jiwaji University, Gwalior.

Psychology

1. Balwan Singh. *An investigation into the nature of self-report, measures of depression*. Panjab. Dr. V. V. Upmanyu, Chairman Department of Psychology, Panjab University, Chandigarh.

2. Khan, Hussain Ahmed. *A study of the effect of special sports training on some psychological attributes of athletes*. Panjab. Dr. Jitendra Mohan, Department of Psychology, Panjab University, Chandigarh.

3. Kumar, M.S. *Behavioural and personaliy changes after closed head injuries in the cultural background of Kerala*. Kerala. Dr. Krishnaprasad Sreedhar, Reader, Department of Psychology, University of Kerala, Kariavattom and Dr. K.N. Rajasekaran Nair, Director and Prof., Department of Neurology, Medical College, Trivandrum.

4. Madhok, Anita. *Motivational patterns and leadership styles of managers and subordinates interpersonal perceptions*. Panjab. Dr. (Mrs) Vidhu Mohan, Department of Psychology, Panjab University, Chandigarh.

5. Mohammad Jameel *The Punjab problem : Motivational patterns, attitudes and opinions of the Punjabi students*. Panjab Dr. J M. Jerath, Department of Psychology, Panjab University, Chandigarh.

6. Puri, Simardeep Nand. *A study of personality pattern, creativity and humour among the lonely, anxious and aggressive children*. Panjab. Dr. L S. Minhan, Department of Psychology, Panjab University, Chandigarh,

Sociology

1. Kothari, Kalpana. *Khargaon Jile ke adivasiyon ke samajik jeevan per shiksha ka prabhav : Pashchim Nimar ke sandarbh mein*. Vikram. Dr. P.N. Khare, Principal, Govt. Girls College, Mandsoure.

2. Mishra, Gajanan. *Impact of industrialization in rural society : A case study of Chincholi Village in Narsinghpur District*. HS Gour. Dr. Shrinath Sharma.

3. Mishra, Sudha. *Vridhavastha ke prabhavon ka samaj shastriya adhyayan*. HS Gour. Dr. Diwakar Sharma.

4. Samant, A.J. *Scheduled caste teachers : A study in their motivational background and roles in social transformation with special reference to Kolhapur City*. Shivaji. Dr. S. M. Dahiwale, Department of Sociology, Shivaji University, Kolhapur.

5. Upadhyaya, Satish Chander. *Mandsaur Jile ke grameen krishi shramikon kee samajik, arthik samsyaon ka adhyayan*. Vikram. Dr. P.N. Khare, Principal, Govt. Girls College, Mandsaur.

6. Varghese, Annamma T. *Family counselling from a systems theory point of view*. Vikram. Dr. Jacob Kattakayam, Lecturer, Department of Sociology, University of Kerala. Kariavattom.

7. Vyas, Shradha. *Kalidas ke Mahakavya mein chitrit nari ka samaj shastriya adhyayan*. Vikram. Dr. P.N. Khare, Principal, Govt. Girls College, Mandsaur.

Political Science

1. Harsukhjit Kaur. *Women leadership at the grassroot level in Panjab : A study of Jalandhar District*. Panjab. Dr. (Miss) Pam Rajput, Department of Political Science, Panjab University, Chandigarh.

2. Lath, Nina. *Soviet interest in the Indian Ocean*. Panjab. Dr. K.K. Pathak, Reader, Department of Political Science, Panjab University, Chandigarh.

3. Mohanakumar, A. *Indo-Pak relations since Simla accord : A study*. Kerala. Dr. P. John John, Prof., Department of Politics, Bishop Moor College, Mavelikara.

4. Umadevi, S. *A study of electoral behaviour in Kottayam Parliamentary Constituency 1977-84*. Kerala.

Economics

1. Jain, Shakti. *Madhya Pradesh mein suti vastra udyog mein audyogik sambandh, 1967 se 1987 tak*. HS Gour. Dr. P.K. Patankar, Reader, Department of Economics, Dr. Hari Singh Gour Vishwavidyalaya Sagar.

2. Mishra, Dhirender Kumar. *Krishi upaj mulya samsya ka adhyayan : Madhya Pradesh ke vishesh sandarbh mein*. HS Gour. Dr. P.K. Patankar, Reader, Department of Economics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

3. Sunny, K.P. *Performance of Indian Railways : A disaggregate level cost analysis*. Kerala. Prof. T.N. Krishnan, Fellow, and Prof. Chandan Mukherjee, Fellor, Centre for Development Studies, Ulloor.

4. Xavier, P. O. *Price cost margin and market structure*. Kerala. Dr. Gita Sen, Fellow and Dr. Pushpangadan, Assoc. Fellow, Centre for Development Studies, Ulloor.

Education

1. Kapani, Madhu. *Education in human values : Concept and practical implications*. Sathya Sai. Prof. A.S. Sethi.

Commerce

1. Prasanna Sai. *Human resource development : A study of selected large scale units in India*. Srthya Sai. Dr. R. Kumar Bhaskar.

2. Sai Giridhar. *Cash, inventory and raceivables management in selected state trading corporations*. Sathya Sai. Prof. P. Murali, Prof. and Head, Department of Commerce, Sri Sathya Sai Institute of Higher Learning, Prasanthinilayam.

Home Science

1. Aggarwal, Savita. *The impact of new agricultural technology on the role of farm women*. Delhi. Dr. (Mrs) S. Malhan, Department of Home Science, Lady Irwin College, New Delhi.

HUMANITIES

Language & Literature

English

1. Chahal, Jyoti. *The making of the poetic self : Versions of twentieth century autobiographies with special reference to Yeats's autobiographies, C. Day Lewis's The Buried Day and Spender's World Within World*. Panjab. Prof. M.L. Raina, Department of English, Panjab University, Chandigarh.

2. Chatterjee, Sandeepan. *Odyssey of the spirit : Paradigm of the quest for spiritual perfection in four modern novels*. Sathya Sai. Prof. A. Ramakrishna Rao,

3. Dharam Chand. *The quest for identity in the novels of R.K. Narayan*. Panjab. Prof. D.R. Sharma, Department of English, Panjab University, Chandigarh.

4. Nayar, Aruti. *From realism to metafiction : The evolution of John Birth's fiction*. Panjab. Prof. M.L. Raina, Department of English, Panjab University, Chandigarh.

5. Subhash Chander. *R.K. Narayan and the Indian novel tradition*. Panjab. Prof. N.K. Oberoi, Department of English, Panjab University, Chandigarh.

Sanskrit

1. Jha, Shankar. *Aitareyataittiriybrahmanagatanampramukharanyayikanamanusheelanam*. BHU. Dr. V.V. Dev, Head and Reader, Department of Veda, Banaras Hindu University, Varanasi.

2. Krishnakumar, Santhinikethan. *Durghata vritti : A study*. Kerala. Prof. K. Chandrasekharan Nair, Department of Sanskrit, Govt. Sanskrit College, Tripunithura.

3. Lalitha, V. *Vastuvidya : A study on Kerala architecture*. Kerala. Dr. N.P. Unni, Prof. and Head, Department of Sanskrit, University of Kerala, Trivandrum.

4. Mishra, Harindra. *Vyakaran shastre vyanjanayah vimarshah*. BHU. Dr. Chandrabhanu Sharma Bharadwaj, Department of Vyakaran, Banaras Hindu University, Varanasi.

5 Mishra, Shridev. *Grihyagnikarmasamiksha*. BHU. Dr. Hriday Ranjan Sharma, Department of Veda, Banaras Hindu University, Varanasi.

6. Pandey, Mahendra. *Yaskavivechitnaipyantukpadanam samikshanam*. BHU. Dr. Vyas Mishra, Department of Veda, Banaras Hindu University, Varanasi.

7. Radhakrishna Banergi, M. *Payyur Vasudeva and his works.* Kerala. Prof. K. Chandrasekharan Nair, Department of Sanskrit, Govt. Sanskrit College, Tripunithura.

8. Ramesh Chander. *Pramukh sanskrit mahakavyon mein darshnik tattva.* HS Gour. Dr. Radha Ballabh Tripathi, Prof. and Head, Department of Sanskrit, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

9. Sharma, Nidhiender Prasad. *Ramananda sampradapa aur Santa Guru Ravidasa.* Panjab. Dr. V.D. Upadhyaya, Department of Sanskrit, Panjab University, Chandigarh and Prof. D.P. Singhal, Department of Guru Ravi Dass Chair, Panjab University, Chandigarh.

10. Sharma, Yog Raj. *A cultural study of the Padmapurana padmacharita by Jainacharya Ravishena.* Panjab. Dr. Ghanshyam Sharma, Reader, Vishesvaranan d Vishwa Bandhu Institute of Sanskrit and Indological Studies, Hoshiarpur.

11. Surender Pal, Singh. *Maharishi Dayanand Sarsvati ke granthon mein prastut va vivechit manovaig yanik sidhant·* Panjab. Dr. B.L. Bhartiya, Department of Dayanand Chair for Vedic Studies, Panjab University, Chandigarh.

12. Upadhyay, Umesh. *Shishyadheevriddhid tantrasyanusheelanam.* BHU. Dr. Chandrama Pandey, Department of Jyotish, Banaras Hindu Universiity, Varanasi.

13. Vijayan, K K. *Ramavarma parikshit tampuran and his works.* Kerala. Prof. K. Chandrasekharan Nair, Department of Sanskrit, Govt. Sanskrit College, Tripunithura.

14. Vijayan, T.S. *A study on kalasachandrika an important work of Thanthra as yet unpublished.* Kerala. Dr. T. Bhaskaran.

Punjabi

1. Baldev Singh. *Giani Jodh Singh jiwan te rachna : Ek mulankan.* Panjab. Prof. D.P. Singhal, Department of Guru Ravi Dass Chair, Panjab University, Chandigarh.

2. Gill, Surinder Singh. *Rajnitik Panjabi kavita, 1900-1950.* Panjab. Prof. Kessar Singh Kessar, School of Punjabi Studies, Panjab University, Chandigarh.

3. Grewal, Harinder Paul. *Panjabi novel vich istry patran da manovigyanik vishleshan, 1947-1970.* Panjab. Dr. H.S. Sachar, Reader, School of Punjabi Studies, Panjab University, Chandigarh.

4. Gurjinder Singh. *1950 ton 1985 tak de Punjabi novel da ik alochanatmak adhyayan.* Panjab. Dr. Om Prakash Vasishta, Reader, Department of Punjabi Lexicography, Panjab University, Chandigarh.

5. Kler, Harinderjit Singh. *Punjabi lok geet ate samajik yatharath.* Panjab. Dr. Om Prakash Vasishta, Reader, Department of Punjabi Lexicography, Panjab University, Chandigarh.

6. Manjeet Kaur. *Hasham Shah dee dukhant chetna.* Panjab. Prof. Attar Singh, Sheikh Baba Farid Chair, Panjab. University, Chandigarh.

7. Mohinder Pal Kaur. *Punjabi vich shatabdi natak : Ik alochnatmak adhyayan.* Panjab. Dr. Raghbir Singh, School of Punjabi Studies, Panjab University, Chandigarh.

8. Parmjit Kaur. *Guru Ravi Dass Bani vich Brahm da sankalp.* Panjab. Dr. R.S. Chand, Head, Department of Panjabi, Govt. College, Hoshiarpur and Prof. D.P. Singhal, Department of Guru Ravi Dass Chair, Panjab University Chandigarh.

9. Surinder Kaur. *Punjabi novel vich parivar da vigathan, 1960-1985.* Panjab. Dr. Kessar Singh Kessar, School of Punjabi Studies, Panjab University; Chandigarh.

Hindi

1. Bajaj, Alka. *Saundrya bodh ke sandarbh mein Vidyapati Padawali evam Sursagar ke dasham skandh ka tulnatmak adhyayan.* Panjab. Dr. R.D. Singhal, Department of Hindi, Panjab University, Chandigarh.

2. Dinesh Chandra. *Hindi ke sathottari khand kavyon mein nayak parikalpana.* Panjab. Dr. Jai Parkash Sharma, Department of Hindi, Panjab University, Chandigarh.

3. Gupta, Rita. *Agyeya ke katha sahitya mein prateeksaundrya.* Panjab. Dr. Paresh, Department of Hindi, Panjab University, Chandigarh.

4. Jain, Kiran. *Jain darshan ke sandarbh mein Muni Vidyasagar Jee ke sahitya ka anusheelan.* HS Gour. Dr. Suresh Acharya, Lecturer, Department of Hindi, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

5. Jain, Sindhu Lata. *Vrindavanlal Verma ke upanyason kee sanskritik, samajik evam itihasik chetna ka adhyayan.* HS Gour. Dr. Balbhadra Tiwari, Reader, Department of Hindi,, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

6. Jain, Sushma. *Kavivar Bhagchand Jain ke vyaktitva evam krititva ka anusheelan.* HS Gour. Dr. Badri Prasad Dapartment of Hindi, Dr. Hari Singh Gour Vishwavidyalaya Sagar.

7. James, M.L. *Dr. Kamil Bulke ka sahitya : Ek adhyayan.* HS Gour. Dr. H.P. Singh, Reader, Department of Hindi, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

8. Khare, Anjana. *Adhunikta ke paripekshwa mein Ramesh Bakshi ke kritittva ka anusheelan.* HS Gour. Dr. Balbhadra Tiwari, Reader, Department of Hindi, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

9. Lalita Kumari. *Hindi kavya mein nirashavad.* Panjab. Prof. M.P. Bhardwaj, Department of Hindi, Panjab University, Chandigarh.

10. Neeru. *Hindi kavita muin mulya vatvidhya, san 1960 ke bad.* Panjab. Dr. Jaya Prakash, Department of Hindi, Panjab University, Chandigarh.

11. Pratima. *Narendra Sharma aur Naresh Mehta parbandhakavyon ke kathashroton ka tulnatmak adhar tatha samkaleen prasangikta.* Panjab. Dr. (Mrs.) Santosh Sharma, Reader, Department of Hindi, Panjab University, Chandigarh.

12. Shephalika. *Premchandottar katha sahitya mein chitrit gram samaj : Renu ke vishesh sandarbh mein.* HS Gour. Dr. Hosila Prasad Singh, Reader, Department of Hindi, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

13. Suresh Kumar. *Chand Hari krit Ramayan papkhandini ka kavya shastriya adhyayan.* Panjab. Dr. Balraj Sharma, Department of Hindi, Panjab University, Chandigarh.

History

1. Chandra, Jyoti. *Annie Besant in India 1893-1933 : From theosophy to nationalism.* Panjab. Dr. Kamlesh Mohan, Reader, Department of History, Panjab University, Chandigarh.

2. Gaikwad, R.K. *A study of Tulshidas Jadhav's role in the political life of Maharashtra.* Shivaji. Dr. A.R. Bhosale, Department of History, Shivaji University, Kolhapur.

3. Gian Chand. *Origin and growth of feudalism in early India from the Mauryas to 650 A.D.* Panjab. Dr. J.K. Sharma, Reader, Department of History, Panjab University, Chandigarh.

4. Manohar, N. Austin John. *The History of South India United Church, 1908-1947.* Kerala. Dr. R.N. Yesudas, Reader, Department of History, Institute of Correspondence Course, University of Kerala, Kariavattom.

5. Mehra, Arti. *W.H. Moreland : A study in historiography of medieval Indian economy.* Panjab. Dr. K, Pawar, Reader, Department of History, Panjab University, Chandigarh.

6. Ram Vir Singh. *Transformation of Vaishnavism during Mughal age : A case study of Braj and Eastern Rajasthan, 1556-1707 A.D.* Panjab. Prof. R.C. Jauhri, Department of History, Panjab University, Chandigarh.

7. Ramalakshmi. *Gandhi and the Indian revolutionaries.* Panjab. Dr. (Mrs.) Sandhya Chaudhary, Department of Gandhian Studies, Panjab University, Chandigarh.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Library Science

1. Johnson, E. *Design and development of a national information system for marine fisheries in India.* Kerala. Prof. K.A. Issac, Head (Retd), Department of Library and Information Science, University of Kerala, Trivandrum.

2. Rout, Ratnakar. *Management of university libraries in India with special reference to Orissa and West Bengal : A critical study.* Burdwan. Dr. Pulin Barua, Prof., Department of Library and Information Science, University of Burdwan, Burdwan.

Journalism

1. Chakrabarti, Debasish. *An misight mito the crisis in ethics of journalism in India.* Calcutta.

Psychology

1. Anamika. *Innovative and adaptive behaviour in relation to some personality and background factors.* IIT Delhi. Prof. (Mrs) Purnima Mathur, Department of Humanities and Social Sciences, Indian Institute of Technology, New Delhi.

2. Avneesh Singh. *Mental health of industrial workers.* IIT Delhi. Dr. (Mrs) Amulya Khurana, Department of Humanities and Social Sciences, Indian Institute of Technology, New Delhi,

3. Bhanot, Suman Lata. *Role of maternal interaction in early childhood development : An empirical study.* IIT Delhi. Prof. (Mrs) Purnima Mathur, Department of Humanities and Social Sciences, Indian Institute of Technology, New Delhi and Dr. (Smt) Adarsh Sharma, 5, Siri Institutional Area; Hauz Khas, New Delhi.

4. Leela, A.V.S. *Religiosity in relation to certain personality traits of college students.* Venkateswara, Dr. I. V. Ramana Reddy, Department of Psychology, Sri Venkateswara University College, Tirupati.

5. Pal, Kalyanirani. *A comparative study of the trends in the development of social life adaptabilities of socio-economically deprived and non-deprived children groups.* Calcutta.

6. Raychaudhuri, Jayati. *Frustration reaction of school children associated with some psychosocial variables.* Calcutta.

7. Sasi, P. T. *Ideological differences and personality characteristics of political leaders.* Kerala. Dr. H. Sam Sanandaraj, Lecturer, Department of Psychology, University of Kerala, Kariavattom.

8. Sodhi, Raman. *A comparative study of emotional problems in minority group and caste : Hindu children and their level of achievement motivation and scholastic achievements.* Jamia. Dr. M. G. Husain, Head, Department of Psychology, Jamia Millia Islamia, New Delhi.

Sociology

1. Pachauri, Rashmi. *Factors related to acceptability for the promotion of renewable energy technologies in rural area,* IIT Delhi. Prof. S.G. Mathur, Centre for Energy Studies, Indian Institute of Technology, New, Delhi and Prof. (Mrs.) P Mathur, Department of Humanities and Social Sciences, Indian Institute of Technology, New Delhi.

2. Pramanik, Sankar Kumar. *A sociological study of the fisherman community of the villages of Sultanpur and Hara in 24-Parganas, West Bengal.* Calcutta.

3. Rajesh Kaur. *Social change in Urban periphery.* Panjab.

Social Work

1. Anjaria, Varsha Naishadh. *Burns : A psychosocial perspective, A study of cases admitted to burns unit, S.S.G., Hospital, Vadodara.* Baroda.

2. Devaerakkam, J. Christopher Daniel. *A study of behaviour deviation among textile workers.* Madurai.

3. Tiwari, Arvind. *Open prisons and their correctional programmes.* HS Gour. Prof. S. C. Tewari, Prof. (Retd), Department of Criminology and Forensic Sciences, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

Political Science

1. Basu, Rumki. *The UN Secretariat : Major problems of recruitment and staffing.* JNU. Prof. M S. Rajan, Centre for International Politics, Organization and Disarmament, Jawaharlal Nehru University, New Delhi.

2. Bhattacharya, Aparna. *Impact of Buddhism on the political process in Sikkim.* NBU.

3. Chakravarty, Jyoti Nath. *The impact of migration on demographic trends in Nagaon District : A socio-economic study, 1901-1971.* Gauhati. Dr. (Miss) Niru Hazarika, Prof. and Head, Department of Political Science, Gauhati University, Guwahati.

4. Chennu, Venkata Subbaiah. *Non-alignment and Indo-Soviet relations, 1966-1977.* Osmania.

5. Daili, Ashikho. *Naga movement and political modernization, 1947-1975.* JNU. Prof. T.K. Oommen, Centre for the Study of Social Systems, Jawaharlal Nehru University, New Delhi.

6. Dubey, Shiv Dayal. *Vidisha Jile ke antargat nagarpalika prashashan evam prabandh ka alochnatmak adhyayan.* Bhopal. Dr. K. G. Shah, Prof. and Head, Department of Political Science, S.S.L. Jain College, Vidisha.

7. Jeevan Kumar, D. *A study of the organisation of working of the Directorate of Backward Classes and Minorities of Government of Karnataka.* Bangalore. Prof. K.H. Chaluvaraju, Vice Chancellor, Gulbarga University, Gulbarga.

8. Roy, Aparna. *Education and modernity of women : A study of Bengali Women.* Burdwan. Prof. Anilbaran Roy, Department of Political Science, University of Burdwan, Burdwan.

9. Sarkar, Dilip Kumar. *Small and medium town development in North Bengal.* NBU.

10. Vasantha, V.A. *The socio-political ideas as revealed in the Nalayira Divya Prabandam.* Madurai.

11. Veeraraghavulu, B. *Regional party rule in Andhra Pradesh : A study of Telugu Desam Party under the leadership of Sri N.T. Rama Rao.* Venkateswara. Dr. S. Sri Krishna, Department of Political Science and Public Administration, Sri Venkateswara University College of Arts and Science, Tirupati.

Economics

1. Balan Pillai, K. *The economic impact of collective bargaining on cashew industry in Kerala.* Kerala. Dr. K. Ramachandran Nair, Prof., Department of Economics, University of Kerala, Kariavattom.

2. Chakrabarti, Swapan Kumar. *Political economy of sericulture in West Bengal.* Calcutta.

3. Dinesh Pratap. *Forest resource utilization, its development strategies and some ecological consequences : A case study of Hill Region of Uttar Pradesh.* JNU. Dr. M.H. Qureshi, Centre for the Study of Regional Development, Jawaharlal Nehru University, New Delhi.

4. Mishra, Hema. *Woman labour welfare : A study of woman labour welfare in industries in the industrial estate and industrial areas of Indore City.* Devi Ahilya. Dr. J.L. Bhandari, Govt. Arts and Commerce College, Indore.

5. Patnaik, Mahesh Kumar. *Economic transformation in rural region through participation of commercial bank : A case study of Bolangir District.* Sambalpur. Dr. Jyoti Prakash Patnaik, Reader, Department of Economics, Sambalpur University, Burla.

6. Satyanarayana, E. *Financing of agriculture by credit cooperatives in Rayalaseema : A statistical analysis with special reference to Chittoor District.* Venkateswara. Prof. V.T. Naidu, Department of Rural Development, Sri Krishnadevaraya University, Anantapur.

7. Sreenivasa Rao, Cherukuri. *An economic analysis of paultry farming : A case study of Visakhapatnam City.* Andhra.

Public Administration

1. Hemalatha Devi, P. *Administrative discretion and judicial review.* Osmania.

2. Sitamahalakshmi, Kongara. *Methods and management of District Revenue Organisation: A case study of East Godavari District in Andhra Pradesh.* Andhra.

3. Venkateswara Rao, Annabattula. *Agricultural administration at block level.* Andhra.

Education

1. Bose, N. Babu Chandra. *Secondary school pupils awareness of environmental mathematics and its relationship with their achievement in the subject.* Madurai.

2. Gautam, N.P. *A study of productivity oriented education with reference to the new pattern of education 10+2+3.* Bombay. Dr. N.R. Parasnis.

3. Kettate, Boonyong. *A comparative study of socio-cultural and educational conditions in the North Eastern Region of Thailand and India.* Panjab.

4. Khushalani, Vandana, S. *Bhaktikaleen kavya mein dharmik va naitik shiksha : Ek adhyayan.* Nagpur. Dr. G.S. Parasher, Department of Education, Nagpur University, Nagpur.

5. Naik, Dalaganjan. *A study of the effect of different models of integration exercise of teaching skills learned through microteaching upon teaching effectiveness and teacher attitude.* Sambalpur. Prof R.C. Das, Ex-Vice Chancellor, 217 Kedar Gouri Road, Bhubaneswar.

6. Natarajan, Savitri. *Study of need motivations of student leaders.* Ravishankar. Dr. V.P. Sharma, Prof., Department of Psychology, Ravishankar University, Raipur.

7. Paranjpe, Sandhya. *Quality of working life : A focus on teachers in special education.* IIT Delhi. Prof. (Mrs.) P. Mathur, Department of Humanities and Social Sciences, Indian Institute of Technology, New Delhi and Dr. J.M. Ojha, Director, Behavioural Science Centre, Netaji Subhash Marg, New Delhi.

8. Rudramamba, B. *Problems of teaching new social studies syllabus for standard VII in Andhra Pradesh and their impact on pupil achievement.* Venkateswara. Prof. N. Venkataiah, Dean, Faculty of Education, University of Mysore, Mysore.

9. Sharma, Shruti. *A study of organisational climate, work alienation and class-room behaviour of Government and private school teachers.* Jammu. Dr. N.R. Sharma, Department of Education, University of Jammu, Jammu.

10. Sheela. *Change in teaching behaviour as a function of inculcation of values predicting teacher's effectiveness.* Panjab.

11. Usmani, Shaheen. *A study of principal effectiveness in relation to professional attainment, socio-economic background, values of life and attitude towards teaching.* Ailgarh. Dr. M.S. Khan, Prof. Department of Education, Aligarh Muslim University, Aligarh.

12. Venugopal, G. *Intellect profile, cognitive style and achievement of students at the middle school level.* Madras.

13. Wadhwani, B.G. *Contribution of Sindhi organisations to education at different levels in the state of Maharashtra.* Bombay. Dr. B.P. Lulla, Principal, Bombay Teachers Training College, Colaba, Bombay.

Commerce

1. Babu Rao, Akiri. *Development of handicraft industry : A study of socio economic, production and marketing characteristics of handicraft sector in Andhra Pradesh.* Andhra.

2. Gupta, D. Nandkishore. *A study of working and organisation of photoframe industry in Nagpur City.* Nagpur. Dr. R.K. Jain.

3. Haque, S.M. Imamul. *The impact of regrouping of railways on the efficiency of Indian Railways.* Aligarh. Prof. Samiuddin, Department of Commerce, Aligarh Muslim University, Aligarh.

4. Iyer, Sunder. *Profitability of Indian commercial banks, 1969-85.* Sathya Sai. Prof. P. Murali, Head, Department of Commerce, Sri Sathya Sai Institute of Higher Learning, Prasanthinilayam.

5. Khan, Abdul Qayyum. *Productivity trends in the Indian public sector with special reference to Iron and Steel industry.* Aligarh. Dr. Mohammad Asif Ali Khan, Department of Commerce, Aligarh Muslim University, Aligarh.

6. Khan, Parvez Ali. *Role of India Tourism Development Corporation (IIDC) in the promotion of tourism in India.* Aligarh. Prof. Ishrat H. Farooqi, Chairman, Department of Commerce, Aligarh Muslim University, Aligarh.

7. Pandit, Shiv R. *Management excellence : An assessment of effective skills and practices in leading Indian business.* Sathya Sai. Prof. Ashok Sahni, Indian Institute of Management, Bangalore.

8. Pandya, Mayur. *Trends in commercial banking in India : A study with special reference to post-nationalisation period.* Sathya Sai. Prof. P. Murali, Head, Department of Commerce, Sri Sathya Sai Institute of Higher Learning, Prasanthinilayam.

9. Singaravel, P. *Regulation of corporate wealth and monopolies in India.* Madras.

Home Science

1. Cheema, Anjali N. *A study of the optimum combination of soaps and synthetic detergents for better clearing efficiency.* Baroda.

Business Management

1. Naresh Kumar. *Inequity in job perception : A study of Indian managers.* IIT Delhi. Dr. (Mrs.) Anuradha Sharma, Department of Humanities and Social Sciences, Indian Institute of Technology, New Delhi.

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BANARAS HINDU UNIVERSITY

Office of the Registrar

ACADEMIC

ANNOUNCEMENT FOR ADMISSION FOR 1989-90

The University will hold UNIVERSITY ENTRANCE TESTS (UET) for admission to various courses of studies as mentioned below, for the session 1989-90 at the under-mentioned centres during the period 13 6.1989 to 21.6.1989. The centres for test will be VARANASI, DELHI, HYDERABAD, MADRAS, RANCHI and CALCUTTA. For 3-Year Shastri (Hons.) additional Centres will be PURI and GUWAHATI. The test in respect of admission to M.F.A., B. Mus, M. Mus. and B. P. Ed. course shall be held at VARANASI centre only. The University reserves the right to cancel any of the centres except VARANASI Candidates should therefore, give choice for three centres, in order of preference, in their application forms. Candidates must note that centre of examination once allotted to a candidate shall not be changed. The centre allotted will be indicated in the Admit Card.

FACULTY/COLLEGE	COURSE OF STUDY	ELIGIBILITY CONDITIONS
1. (a) **Arts/Social Sciences/ Mahila Mahavidyalaya** (Girls Only)	3-Year B.A. (Honours)	Passed + 2 (of 10+2 pattern) or equivalent examination with 45 per cent marks in aggregate.
(b) **Affiliated Colleges :**		
(i) D.A.V. Degree College (for boys only)		
(ii) Arya Mahila Degree College (iii) Vasant Kanya Mahavidyalaya (For Girls Only)		
2. **Science/Mahila Mahavidyalaya** (Girls only)	3-Year B.Sc. (Honours)	Passed + 2 (of 10+2 pattern) or equivalent exam. with 45% marks in Science subjects (Physics, Chem., Maths, and/or Biology).
3. **Commerce/** D.A.V. Degree College	3-Year B.Com. (Honours)	Passed + 2 (of 10+2 pattern) or equivalent exam. with Commerce or Economics or Maths. as a subject with 45 per cent marks in aggregate.
4. **Sanskrit Vidya Dharma Vijnana**	3-Year Shastri (Honours)	Passed Madhyama of B.H.U. or + 2 (under 10+2 pattern) with 45 per cent marks in aggregate.
For SC/ST Candidates :		Passed + 2 (of 10+2 pattern) or equivalent examination with subject specifications noted above, for the course 1 to 4
5. **Arts**	1-Year B.J. B. Lib. and Inf. Sc., B. P. Ed.	Graduate under 10+2+3 pattern with 50 per cent marks in aggregate OR postgraduate with 50 per cent marks in aggregate.
		In case of SC/ST candidates 40 per cent marks in aggregate.
	1-Year M.J.	B.J. with 50 per cent marks in aggregate.
	1-Year M. Lib. & Inf. Sc.	B. Lib. Sc. with 50 per cent marks in aggregate.
	1-Year M.P. Ed.	B.P. Ed. with 50 per cent marks in Theory, Practice and proficiency—separately.
	2-Year M.A. (Museology)	M.A. in History/A.I.H.C. and Arch./Sanskrit/History of Art or in allied subjects with 50 per cent marks in the aggregare.

1	2	3
6. (a) Education (b) Affiliated College : (i) Arya Mahila Degree College) Only B.Ed. for Girls (only)	1-Year B. Ed.	Graduate under 10+2+3 pattern with 50 per cent marks in aggregate OR M.A./M.Sc./M.Com with 50 per cent marks in aggregate. In case of SC/ST only Pass marks are required.
	1-Year M. Ed.	Graduate under 10+2+3 pattern and B. Ed. or B. Ed. with Postgraduate degree.
7. Law	3-Year LL.B.	B.A./B.Sc./B.Com. under 10+2+3 pattern with 45 per cent marks in aggregate or B.Tech/B Sc. (Ag.) M.B.B.S. In case of SC/ST 40 per cent marks in aggregate.
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	2-Year M. Mus. (Vocal/Instrumental)	+2 (of 10+2 pattern) or equivalent examination and 3-year B. Mus. in the subject with 55 per cent marks in the practical of B. Mus. Exam.
	2-Year M. Musicology	B.A. with Music under 10+2+3 pattern with 55 per cent marks in Music or B. Mus. with 55 per cent marks each in theory and practical with a graduate degree.
9. Visual Arts	5-Year B.F.A.	Passed 10th Class or equivalent examination with 45 per cent mark in aggregate. In case of SC/ST only pass marks are required. Maximum age 21 years as on 31.7.1989.
	2-Year M.F.A. (Painting/Applied Art/Plastic Art)	B.F.A. in the subject concerned under 10+5 or 10+4 pattern wit 55 per cent marks in aggregate.
10. Computer Centre	1-Year P.G. Diploma Course in Computer Science Applications.	(a) B.Sc. under 10+2+3 pattern or equivalent with 45 per cent marks in aggregate. (b) Candidates must have offered Physics and Mathematics in I.Sc./+2/equivalent examination.
RESERVATION (For all courses)		15 per cent and 7.5 per cent seats are reserved for SC/ST candidate respectively. 3 per cent seats for Orthopaedically Handicapped candidates provided they qualify in the Test.

Detailed Information about the Test, Subjects available for Honours Combinations, etc. is given in the INFORMATION LEAFLET.

Cost of Forms and Test Fee :

Rs. 10/- per set of application form along with Information Leaflet. Application forms can be obtained either personally from the Office of the respective Deans of Faculties or Principals of College concerned or Co-ordinator, Computer Centre (D.C.A. course) OR through post by sending request along with crossed Postal Order for Rs. 18/- (including postal charges) to the respective Deans of Faculties/Principals of Colleges/Co-ordinator, Computer Centre

(D.C.A. Course) payable at Malaviya Nagar Post Office, B.H.U. Varanasi 221005 along with a self-addressed envelope of the size 28 × 20 cm. The COURSE to which admission is sought MUST be clearly stated. Examination Fee in each case shall be Rs. 40/- (Rs. 10/- for SC/ST and for the Sanskrit Vidya Dharma Vijnana Sankaya).

NOTE

Applications duly completed and accompanied by all the relevant mark-sheets, certificates, caste certificate and corssed Bank Draft towards Examination fee in favour of REGISTRAR, Banaras Hindu University should reach the Controller of Examinations, Banaras Hindu University, Varanasi-221005 on or before **17th March, 1989.** No application shall be accepted after the last date.

Candidates who are due to appear in the respective qualifying examination prescribed for admission to a particular course are also eligible to appear in the University Entrance Test, (UET) as per conditions laid down in this regard. However, in the event of selection, their admission shall be subject to their securing the prescribed percentage of marks in the qualifying examination and submission of final marks-sheet of the qualifying examination and production of all documents in original for verification by a date to be specified by the University. Candidates are required to purchase a separate form for each course.

Admission of Foreign Nationals :

All the FOREIGN NATIONALS who are available in India and/or those who have passed qualifying examinations from an Indian University/Board shall have to appear in the U.E.T.

Date of Issue of Application Forms : Monday, 23rd January, 1989 onwards
Last date for postal request for forms : Monday, 20th February, 1989
Last date for sale of forms from Counter : Wednesday, 15th March, 1989
Last date for receipt of completed application forms : Friday, 17th March, 1989.

REGISTRAR

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(Deemed University)

Vidya Giri, Prasanthi Nilayam-515 134 (A.P.)

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The Institute invites applications for various positions in the Faculty of Education (Professor & Reader) and in the Departments of Philosophy (Professor & Reader), Home-Science (Professor) at its ANANTAPUR CAMPUS FOR WOMEN.

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3. Economics
4. Marketing Management
5. Organisational Behaviour
6. Personnel Management & Industrial Relations.
7. Operations Research & Quantitative Techniques

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Details regarding qualifications, experience, areas of specialisation in various departments, will be provided alongwith the application form available on request.

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Note : For the post of Project Coordinator for the Population Education Project desirable qualifications and job requirements are as under :

Desirable : (a) Degree in Education with specialisation in curriculum development. (b) Research and developmental work in the area of curriculum, instructional materials in school subjects and population education for atleast five years. (c) Atleast five years experience in the area of teacher education and conducting inservice education programme. (d) Field experience of working with schools training colleges and state education agencies.

Job Requirements : The person selected would be required to look after the Population Education Unit in the NCERT and also act as Coordinator of the National Project in Population Education. (b) Besides providing academic leadership in the area of Population Education in the country, the person would be required to work very closely with State Governments, Departments of Education, and State Agencies in Education in implementing the project. (c) The major constituents of work involved are three-fold : (i) Curriculum Development including preparation of instructional materials, (ii) Training, Orientation and extension activities, (iii) Research and evaluation in Population, Education, and (iv) Any other work assigned by the Council.

II. **Four Posts of Lecturers :** Three in Education in the area of Special Education and One in Agriculture.

Qualifications : (a) A Doctorate degree or research work of an equally high standard; and (b) Good academic record with atleast second class ('C' in the seven point scale) Master's degree in a relevant subject from an Indian University or an equivalent degree from a foreign unversity.

Provided that if the selection committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctorate degree or equivalent research work is not available or is not considered suitable, a person possessing a good academic record, (weightage being given to M.Phil or equivalent degree or research work of quality) may be appointed provided he has done research work for atleast two years or has practical experience in a research organisation on the condition that he will have to obtain a Doctorate degree or give evidence of research of high standard within eight years of his appointment, failing which he will not be able to earn future increment until he fulfils these requirements.

Desirable : (a) Degree or Diploma in any of the following area of disability : Visual Handicap/Hearing Impairment/Orthopaedically Handicap and Mental Retardation. Persons with Doctoral degree will be preferred.

Note : For the post of Lecturer in Agriculture the Master's degree should be with specialisation in Animal Husbandry/Horticulture/Agronomy.

Desirable : Degree in teaching.

III. **One Post of Post-graduate Teacher in Physics :** (Reserved for SC/ST to be posted in the Regional Colleges of Education).

Qualifications Essential : Atleast second class Master's Degree (45% marks and above considered as equivalent) in the subject concerned. (b) University Degree/Diploma in Teaching. (c) Three years teaching experience in a recognised school or Integrated two years Post Graduate Course (M.Sc. Ed. or RCEs of NCERT). **Desirable :** Competence to teach the subject in both Hindi and English Media.

Note : (1) Teaching experience is relaxable for non-teaching employees of the Council who have put in 5 years service in the Council. (2) In case of candidates possessing first class Master's Degree as well as first class Bachelor's Degree, essential qualifications (b) and (c) shall be relaxed for a limited period. A candidate thus selected will be placed on trial for a period of two years which may be extended by one more year if the candidate is not able to acquire teaching degree/diploma within the stipulated period of two years of his/her performance is not considered satisfactory by the Competent Authority and will be continued further subject to his/her acquiring teaching degree and also satisfactory performance during this period.

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Qualifications : (a) M.A. Psychology or M.Ed. (b) Diploma in Educational and Vocational guidance.

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1.	Professor	Rs. 4500-7300	Below 45 years
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Note : (a) There is no age limit for the employees of the Council. Age concessions allowed for SC/ST candidates, displaced persons and Ex-servicemen as per Government of India instructions. (b) The number of vacancies in each subject is tentative and liable to change. (c) All employees of the Council can be transferred to any of the establishments of the Council, anywhere in India. (d) If a candidate is found to be of exceptional merit, relaxation of qualifications, experience and age etc., may be given by the Selection Committee at its discretion. (e) The prescribed qualifications are minimum and mere possession of the same does not entitle candidates to be called for interview. When the number of applications received in response to the advertisement is large, it will not be possible or convenient for the Council to interview all these candidates. The Council may then restrict the number of candidates for interview to a reasonable limit, on the basis of qualifications and experience higher than the minimum prescribed in the advertisement. (f) 25% of the posts of Lecturers and above are earmarked for being filled up by deputation/contract for a period of 2 to 3 years from school system in the States viz. SCERTs/SIEs, Teacher Training Institutes, Universities with Departments of Education etc. provided they fulfil the prescribed qualifications. (g) The National Council of Educational Research and Training deals in curriculum Development, Teachers' Training, Research and Development work in the area of curriculum, instructional material in school subjects and population education etc. The candidates conversant with such subjects may be preferred.

Prescribed application form can be obtained from the address given below enclosing an unstamped envelope (28 cms × 12 cms.) giving name of the post, serial number and advertisement number. The outer cover should be marked 'Request for Application Form'. Separate application should be submitted for each post.

Those employed in Govt./Semi-Govt./Autonomous Organisations should send their applications through proper channel. They may however, if they so desire, submit advance copy of their Bio-data direct to the Council enclosing the application fee if applicable.

Completed application form alongwith attested copies of certificates of qualifications and experience etc. and a crossed Indian Postal Order for Rs 8/- (No fee for SC/ST candidates) in favour of Secretary, NCERT should reach him by **22nd February, 1989.**

Applications/Bio-data received without prescribed fee and/or received after the closing date will not be entertained.

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Admission open to various Under-Graduate & Post-Graduate Courses in Arts, Science, Commerce, Master in Business Administration (M.B.A.) & Bachelor Degrees in Education (B. Ed.) commencing in June 1989. Candidates for admission to UG Courses should have completed before May 1989, 12 years of schooling with minimum 50% marks and for P.G. Courses, including M B.A. and B. Ed. should have secured minimum 50% marks in the subject/courses and General English and also completed before May 1989, 15 years of formal education i.e., 10+2+3 pattern or equivalent thereof.

Interested candidates may apply from February 10, 1989, requesting for Information Handbook and Application Form (containing details regarding courses, dates of admission test and interview, etc.) alongwith I.P.O. or Bank Draft for Rs. 25/- drawn in favour of "SRI SATHYA SAI INSTITUTE OF HIGHER LEARNING" payable at PRASANTHI NILAYAM. Candidates for M.B.A. and B.Ed. courses should send Rs. 35/- as I.P.O. or Bank Draft.

Last date for request for application by post is **April 3, 1989** and in person is **April 10, 1989.**

REGISTRAR

CLASSIFIED ADVERTISEMENTS

ASSAM AGRICULTURAL UNIVERSITY

JORHAT

Advertisement No. 17/88

Applications are invited in prescribed application forms for the following posts in the Assam Agril. University. (1) one post of Director of Research (Vety.) Khanapara (Tenural for a period of 5 years) (2) One post of Associate Director of Extension Education (Vety.) Khanapara and (3) one post of Associate Director, Publication and Information. The pay scale for the post of at Sl. No. 1 is Rs. 1500-60-1800-100-2000-125/2-2500/- (unrevised) plus Rs. 250/- p.m. as special pay or rent free quarter in lieu thereof and serial Nos. 2 and 3 is Rs. 1500-60-1800-100-2000-125/2-2500 (unrevised) plus other allowances as admissible under the University rules.

Prescribed application forms and other details regarding qualifications, experience etc. required for the posts may be had by sending self-addressed 90 paise stamp envelope of the size 23 x 10 cm. from the undersigned. The last date of receipt of application complete in all respect is **10th February, 1989.** The candidates already in service should apply through proper channel. Incomplete applications shall not be entertained and shall be summarily rejected. The candidates who applied for the posts of Associate Director of Research (Vety.) and Associate Director of Extension Education (Vety.) in response to Advt. No. 11/88 possessing the required qualifications now prescribed for the posts of Director of Research (Vety.) and Associate Director of Extension Education (Vety.) need not apply again. They may, however, furnish additional biodata/information, if any, in support of their candidature in terms of the qualifications required for the posts.

K.N. Chutiya
DEPUTY REGISTRAR (Personnel)

THE UNIVERSITY OF BURDWAN

RAJBATI : BURDWAN
WEST BENGAL
CORRIGENDUM
to Advertisement No. 14/88-89
Dated : January 10, 1989
Published in this Paper.

Against Item E : To be read as Lecturership in Economics—Two posts; **First post** (lien bound but likely to be permanent) with specialisation in **"Statistics and Econometrics"; Second post** with specialisation in **"International Trade".**

Last date of submission of application forms against the advertisement is extended upto **February 15, 1989.**

A.P. Baisnab
REGISTRAR

BIHAR UNIVERSITY

MUZAFFARPUR

Applications are invited from citizens of India in the following Proforma alongwith a Bank Draft of Rs. 15/- only in favour of the Registrar, Bihar University, Muzaffarpur, payable at Punjab National Bank, Khabra Road, Muzaffarpur/State Bank of India, Bihar University Branch, Muzaffarpur, so as to reach the undersigned on or before the **15th February, 1989,** for appointment to the posts of lecturers in English, Hindi, Urdu & Pesian, Bengali, Maithili, Sanskrit, Philosophy, Economics, Political Science, History, Psychology, Geography, Home Science, Sociology, Music Physics, Chemistry, Botany, Zoology, Mathematics, Commerce and Physical Education, under the Bihar University service, on purely temporary basis not exceeding six months, in the scale of pay of Rs. 700-40-1100-50-1600 plus other allowances as admissible under the University rules :—

Qualifications :

(i) The minimum qualification required for appointment to the post of lecturer shall be Master Degree in the relevant subject with atleast 55% marks or its equivalent grade (B+) and uniformally good academic record;

(ii) M.Phil, and Ph.D. Degree in the relevant subject may be considered as an additional qualification;

(iii) The minimum qualification shall not be relaxed even in respect of candidates who have research degree like M.Phil/Ph.D.

Desirable Qualification for the Post of Lecturer in Physical Education only

(i) University/State level participation in Yoga/Game/Sport;

(ii) One year Degree/Diploma in Yoga/Game/Sport from a recognised institution.

Provided that for a lecturer teaching Yoga, a degree or diploma from a recognised institution will be essential.

Reservation

Reservation for the candidates belonging to Scheduled Caste/Scheduled Tribes/Backward Classes/Wowen/Economically Backward Classes and Extremely Backward Classes shall be followed as per provisions of the Statutes on production of authentic proof in this regard.

PROFORMA

1. Subject for which applied.
2. Name of candidate (In block letters).
3. Father's Name.
4. Home Address.
5. Present address.
6. Date of birth.
7. Academic qualifications : (From Matric onward)

Examination	Year of passing	Division/ Class	Aggregate marks	Percentage of marks
1	2	3	4	5

8. Teaching experience, if any :
9. Whether the candidate belongs to SC/ST/BC Eco. BC Ext BC :

Note :

1. Candidates already in employment should send their applications through their employers. They may, however, send an advance copy of their applications so as to reach the undersigned by the scheduled date ;
2. Attested / Photo-stat copies of Mark-sheets, certificates, Degrees and other relevant papers must be enclosed with the application form in support of qualifications, experience, etc.

S.N Mishra
REGISTRAR

SARDAR PATEL UNIVERSITY

P.B. No. 10
VALLABH VIDYANAGAR-388 120

(GUJARAT) INDIA

Invites outstanding original research works of merit, carried out during 1984 to 1988 in "Nuclear Physics" from researchers of Universities or Institute deemed as universities or Institutes of National Level for the award of a cash prize and a Gold Medal both amounting to Rs. 5,000/- under "Hari Ohm Ashram Prerit Shri Harivallabhdas Chunilal Shah Research Endowment" which should reach the University latest by **28.2.1989.**

A specimen of application form and the terms and conditions can be had from the Sardar Patel University by sending a self-addressed envelope affixed with stamps worth Re. 1/- or in person.

REGISTRAR

INDIAN INSTITUTE OF SCIENCE

BANGALORE-560 012

Requires

Principal Scientific Officer in the **Primate Research Laboratory.**

Qualifications and Experience

Essential : Ph.D. (in Bio-Chemistry with a minimum of 15 years research experience in the area of protein hormones.

Desirable : Experience in protein hormone purification, development of analytical techniques as applied to endoctrine bio-chemistry and in particular applicable to primate endocrinology. Interest in persuing research in primate endocrinology, research experience supported by publications. Besides this, experience in imparting training and supervising the work of Junior Scientists.

Emoluments : Rs. 5,405/- p.m. in the grade Rs. 3700-5000.

Details and prescribed application forms can be obtained on request from the Registrar, accompanied by a crossed Postal Order for Rs. 5/- (free of cost to SC/ST on production of Caste Certificate from a competent authority) drawn in favour of the Registrar, Indian Institute of Science, Bangalore-560 012, along with a self-addressed (Rs. 5-40) stamped envelope of the size 28 x 18 cms. on or before **13th February, 1989.**

REGISTRAR

NATIONAL INSTITUTE OF HYDROLOGY

JAL VIGYAN BHAWAN
ROORKEE
No. 1/89-NIH (Admn.)
Dated : January 16, 1989.

Applications are invited for the following posts in National Institute of Hydrology (A Govt. of India Society, Roorkee from Indian Nationals satisfying qualifications and experience laid down therefor. 2 posts for Scheduled Caste and 1 post for Scheduled Tribe candidates are reserved in each category of Scientist 'E', 'C' and 'B'.

1. Scientist 'E' : 9 posts in the following areas :

(a) Surface Water Hydrology/Conjunctive Use	5 posts
(b) Drainage/Drought Studies	2 posts
(c) Atmospheric Land Surface Process Modelling	1 post
(d) Hydrologic Investigation	1 post

Scale of Pay : Rs. 3700-125-4700-150-5000.

Total emoluments at the initial of the scale is Rs. 4505/- excluding HRA.

Age : Below 45 years.

Qualifications I. : For Areas (a).

Surface Water Hydrology/Conjunctive Use

High Academic Qualifications in Civil Engineering with specialization in Hydrology or Water Resources, or equivalent.

For Areas (b)

Drainage/Drought Studies

High Academic Qualifications in Civil Engg. or Agricultural Engg. with specialisation in Hydrology or Water Resources or Soil & Water Conservation Engineering or equivalent.

For Areas (c)

Atmospheric Land Surface Process Modelling

High Academic Qualifications in Civil Engineering with specialisation in Hydrology or Water Resources, or equivalent.

OR

High Academic Qualifications in Physics/Meteorology.

For Areas (d)

Hydrologic Investigation

High Academic Qualifications in Civil Engineering/Hydrology/Geology/ Agricultural Engineering with specialisation in Hydrology or Water Resources or equivalent.

II. 1. About 7 years experience in teaching/research/design/planning.

2. Proven ability of conducting and guiding research.

Desirable : 1. Ph.D. Degree

2. Experience in Field Problems. Corporate membership in professional Institutions.

2. Scientist 'C' : 11 posts in the following areas :

(a) Surface Water Hydrology/Water Resources Systems. — 5 posts
(b) Ground Water Hydrology — 1 post
(c) Drought Studies/Man's Influence /Drainage/Information System — 4 posts
(d) Hydrologic Investigations — 1 post

Scale of Pay : Rs. 3000-100-3500-125-4500. Total emolument at the initial of the scale is Rs. 3690/- excluding HRA.

Age : Below 40 years.

Qualifications I : For Areas (a)

Surface Water Hydrology / Water Resources System

A Bachelor's degree in Civil Engg. with minimum of 60% marks or 7.0/10.0 CPI or equivalent.

OR

Master's degree with specialisation in Water Resources/Hydraulics Engg./Hydrology with minimum of 60% marks or 7.0/10.0 CPI or equivalent.

For Area (b)

Groundwater Hydrology

A Bachelor's degree in Civil Engg. with minimum of 60% marks or 7.0/10.0 CPI or equivalent.

OR

Master's degree with specialisation in Water Resources / Hydraulics Engg./ Hydrology with minimum of 60% marks or 7.0/10.0 CPI or equivalent.

OR

Master's degree in Science in Geology with minimum of 60% marks or 7.0/10.0 CPI, or equivalent.

For Areas (c)

Drought Studies/Man's Influence/Drainage/Information System

A Bachelor's degree in Civil Engg./ Agricultural Engg. with minimum of 60% marks or 7.0/10,0 CPI or equivalent.

OR

Master's degree with specialisation in Water Resources/Hydraulics Engg./ Hydrology, with minimum of 60% marks or 7.0/10.0 CPI or equivalent.

For Area (d)

Hydrological Investigation

A Bachelor's degree in Civil Engg./ Agricultural Engg. with minimum 60% marks or 7.0/10.0 CPI, or equivalent.

OR

Master's degree in Geology with minimum of 60% marks or 7.0/10.0 CPI, or equivalent.

II. 5 years experience of Design/ Teaching research in Institutions dealing with Water Resources areas.

Desirable : Ph.D. in Science/Engineering.

3. **Scientist 'B' :** 8 posts in the following areas :

(a) Surface Water Hydrology/Water Resources System / Conjunctive Use. — 3 posts
(b) Groundwater Hydrology — 1 post
(c) Drought Studies/Man's Influence/Drainage — 3 posts
(d) Hydrological Investigations — 1 post

Scale of Pay : Rs. 2200-75-2800-EB-100-4000 (Revised). The total emoluments at the initial of the scale is Rs. 2706/- excluding HRA.

Age : Below 30 years.

Qualifications : For Areas (a)

Surface Water Hydrology / Water Resources System/Conjunctive Use

A Bachelor's degree in Civil Engg. with minimum of 60% marks or 7.0/10.0 CPI, or equivalent.

OR

Master's degree with specialisation in Water Resources / Hydraulic Engg./ Hydrology, with minimum of 60% marks or 7.0/10.0 CPI or equivalent.

For Areas (b)

Ground Water Hydrology

A Bachelor's degree in Civil Engg. with minimum of 60% marks or 7.0/10.0 CPI, or equivalent.

OR

Master's degree with specialization in Water Resources/Hydraulic Eng /Hydrology with minimum of 60% marks or 7.0/10.0 CPI, or equivalent.

OR

Master's degree in Science in Geology with minimum of 60% marks or 7.0/10.0 CPI, or equivalent.

For Areas (c)

Drought Studies/Man's Influence/ Drainage

A Bachelor's degree in Civil Engg./ Agricultural Engg. with minimum of 60% marks or 7.0/10.0 CPI, or equivalent.

OR

Master's degree with specialisation in Water Resources / Hydraulic Engg. / Hydrology, with minimum of 60% marks or 7.0/10.0 CPI, or equivalent.

For Areas (d)

Hydrological Investigation

A Bachelor's degree in Civil Engg./ Agricultural Engg. with minimum of 60% marks or 7.0/10.0 CPI, or equivalent.

OR

Master's degree in Science in Geology with minimum of 60% marks or 7.0/10.0 CPI, or equivalent.

Note : Selected persons for Scientist 'E' & 'C' can be appointed on deputation basis also.

The above mentioned posts carry usual allowances as admissible under the Central Government Rules. Age will be relaxable for persons already in Service in the Institute and other Government/ Semi-Govt./Autonomous organisations as well as candidates belonging to SC/ST community, retrenched employees or Defence services and physically handicapped persons, as per rules of the Government of India.

Age will be determined as on 15th March, 1989.

Persons already employed in Govt./ Semi-Govt./Autonomous Bodies should apply through proper channel. Application not forwarded through proper channel may not be considered.

Candidates applying for more than one post should use separate application form for each post and remit fees separately for each post.

Application forms may be obtained by 10.2.89 from Chief Administrative Officer, National Institute of Hydrology, Jal Vigyan Bhawan, Roorkee-247 667 (UP) by sending a self addressed envelope of the size 12 x 28 cms. Application forms duly completed in duplicate with copies of all testimonials alongwith an application fee in the form of Indian Postal Orders of Rs. 8/-. (SC/ST candidates are exempted from payment of fee) payable to the National Institute of Hydrology at the Roorkee University Post Office should reach the Chief Administrative Officer, National Institute of Hydrology, Jal Vigyan Bhawan, Roorkee-247 667 (UP) on or before 15.3.1989.

Job Location : Anywhere in India.

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University News

MONDAY, FEBRUARY 6, 1989 Rs. 2.50

महात्मा फुले कृषि विद्यापीठ
अन्नं वहु कुर्वीत तद् व्रतम
FIFTEENTH CONVOCATION

ifteenth Convocation of Mahatma Phule Agricultural University. Seen from left are Prof. L.R. Kanawade, Registra Dr. N.G. Perur, Vice-Chancellor; Shri Vilasraoji Deshmukh, Minister for Agriculture, Maharashtra; Dr. M.S. Swaminathan, President, International Union for the Conservation of Natural Resources; Dr. B.H. Mogal, Dean, Faculty of Agriculture and Prof. Sinnarkar, Dean, Faculty of Agricultural Engineering.

GOVERNMENT OF INDIA
MINISTRY OF HUMAN RESOURCE DEVELOPMENT
(DEPARTMENT OF EDUCATION)

GREEK GOVERNMENT SCHOLARSHIPS 1989-90

Applications are invited on plain paper from the Indian Nationals residing in India for the award of two scholarships offered by the Government of Greece for period of ten months for the academic year 1989-90 in the following subject-fields :

SUBJECT-FIELDS :- (i) History of Art and (ii) Fine Arts.

QUALIFICATIONS : HISTORY OF ART : Master's Degree with History of Art/Archaeology/Art Education or Master's Degree in Fine Arts from any National Institution. **FINE ARTS :** Five years' National Diploma in Fine Arts or Degree in Fine Arts from a recognised Institution/University. However preference will be given to the candidate possessing Master's Degree in Fine Arts.

ESSENTIAL EXPERIENCE : Except for Fine Arts, at least two consecutive years' teaching/research/practical experience as on 1.10.1989 in the subject field selected after obtaining prescribed qualifications.

VALUE : Monthly allowance : Between 40,000/- Drechmas (Approx. 275/ US$) and 45,000/- Drechmas (Aprox. 310 US$).

AGE : 33 years as on 1.10.1989 (Relaxation in age upto two years will be given in the case of Scheduled Caste/Tribe candidates). The upper age limit and experience may be relaxed not more than three months at the discretion of the Selection Committee in the case of brilliant candidates.

PASSAGE COST :- The cost of passage from India to Greece and back will have to be borne by the selected candidate or his/her employer/sponsor. Subject to availability of funds, the passage cost may be met by the Government of India provided the candidate is eligible under the rules.

NOTE : (i) Candidates with equivalent foreign qualifications will be considered. (ii) The candidates should give their exact percentage of marks at all levels. Grade points will not be considered. (iii) Only candidates with 60% marks and above at the level of minimum qualifications as prescribed above, are eligible. (iv) Applications of candidates, who are abroad will not be considered (v) The candidate should have adequate knowledge of geographical situation, culture & heritage of India and Greece. (vi) Employed persons must sent their applications through their employers with **"NO OBJECTION CERTIFICATE"** in time failing which, application shall not be considered. (vii) Candidates who have already been abroad for study/research training on a scholarship are eligible to apply if they have been in India for at least three consecutive years after return from abroad. (viii) Applications which do not contain postal order will be considered incomplete and will not be considered. (ix) Applications in the subject-field other than those specified above will not be considered. (x) Candidates who do not possess the requisite qualifications need not apply. Applications with incomplete documents will not be considered. (xi) Candidates holding Ph.D. degree are not eligible to apply. (xii) Candidates should apply for the above scholarship on a plain paper furnishing the following details :

Applications received late will not be entertained.

FORMAT OF APPLICATION

1. Name of the Scholarship Scheme
2. (a) Subject (b) Sub-subject
3. Name of the candidate (in Block Letters) with full mailing address
4. Date of birth and the State to which the candidate belongs
5. Whether a member of SC/ST or a tribal or aboriginal community if so, give full particulars.
6. Academic record starting from High School/Higher Secondary :

Affix a recent
Passport size
Photograph

Name of the Board/University/Institution	Exam(s) Passed	Year of Passing	Division/Class with Position; if any*	% age of marks obtained and position, if any.	Subjects taken.

* (in case no Division/Class is awarded & only grading is done the conversion formula adopted may be mentioned. Please attach attested/photostat copies of academic record alongwith your application)

7. Details of Professional Practical Training and Research Experience specifying the period and number of papers published, previous employment with the same and date of employment, if any
8. Nature of the present employment with date of appointment, designation and the name and address of the employers.
9. Have you been abroad, if so, give full particulars of the country and the period. Also, mention the year of return to India.
10. Proposed programme of study/research/training specifying; (i) the work at present engaged in; (ii) future plans prospects after the proposed studies/research; (iii) nature and programme of study/research desired; (iv) How are these related to the technical or economic development of India.
11. Number and date of Crossed Postal Order of Rupees five only (Rupee one and paisa twenty five only in case of SC/ST candidates etc.) attached with the form.

NOTE : Employed persons must send their applications fully sponsored by their employer. However, advance applications complete in all respects will be considered provisionally pending sponsorship by employers. Applications must be sent to the Assistant Educational Adviser, Ministry of Human Resource Development, (Department of Education) External Scholarships Division, E.S. : 5 Section, Room No. 517, 'B' Wing, Shastri Bhavan, New Delhi-110001 by 28th February, 1989.

Place : Date : (Signature of Candidate)

davp 88/752

UNIVERSITY NEWS

VOL. XXVII FEBRUARY 6
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Editor :
SUTINDER SINGH

UNIT
C.F.T.R.I., MYSORE

COMMUNICATION STRATEGIES IN ADULT EDUCATION

K. K. Bajaj*

In social planning the challenge of ignorance and illiteracy among our adult masses has to be met on priority. A large and growing population belonging mainly to the socio-economically deprived section of society calls for priority of consideration so as to take it out of poverty and deprivation syndrome. In recent times development planning has come to be correlated with development education for ensuring social change. It envisages sustained programming for adult illiterates, dropouts and neo-literates who are in abundance among bonded labour, nomads, social outcastes, destitutes, migratory labour and otherwise economically exploited beings of our society, living in villages and city slums. As the country continues to progress economically and agriculturally and become politically conscious, it seems paradoxical that the economic, political and social factors should continue to contribute to swell the ranks of illiterates. In Gandhiji's words "mass illiteracy is India's sin and shame; the literacy campaign must not begin and end with mere knowledge of the alphabets. It must go hand in hand with the spread of useful knowledge". Again he says, "Literacy is not the end of education, not even the beginning—it is only with means whereby men and women can be educated."[1] This should aim at developing an all round vigorous personality, physically and mentally alert with will and power to decide and improve.

National Adult Education Programme

While the Planning Commission adheres to its priorities and constraints in each plan, the challenge of adult illiterates has never been conceived as the topmost national priority. Universal primary education also does not attain its proposed targets in view of the vastness of our country and increasing population in the face of paucity of resources. Taking illiteracy as a serious impediment to the country's socio-economic progress and given that the illiterate and the poor can rise to their own liberation only through literacy and through dialogue National Adult Education Programme (NAEP) was launched on 2nd October 1978. "In the Sixth Five Year Plan (1978-83) this constituted one of the minimum needs of the poorest sections of society."[2] It aimed at the extension of educational facilities to the entire population of approximately 100 million illiterates with special attention to the 15-35 age-group with an emphasis on "the correlation between working, living and learning with relevance to the environment, flexibility of approach, participation, diversity of curriculum and teaching and learning materials."[3] It contained a programme of literacy and numeracy, functional development and social awareness including awareness of rights and duties among the illiterates. The Central Government provided the necessary resources for the implementation of this all important social measure to the States. Initially "NAEP permitted involvement of State departments, voluntary agencies and universities keeping out all other organisations with religious and political background."[4]

In the course of a decade of its existence while the apex of resource structure in the shape of Directorate of Adult Education has come to be

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**Dean of Colleges-cum-Director, College Development Council, Himachal Pradesh University, Shimla-171005.*

established at the centre, the Universities have also been given the task and responsibility of setting up Departments of Adult Education for the preparation of curriculae and proliferation of material and teaching techniques and aids for the success of this programme. In 92 universities and 2138 colleges in 18 states and 2 Union Territories it has involved over 25,000 students as instructors, and over 2,50,000 students in aiding in the environment building process and 1,00,000 students in MPFL through 25,000 adult education centres till June 1987.[5] Recently the UGC has emphasised Area Development Approach for ensuring ever increasing participation of students in community education programmes and support. "The approach envisages inter-linkages of the existing programmes of removal of illiteracy, continuing education etc., with other development activities as an extension programme in the community for achieving critical development goals and to set up demonstration units in areas adopted by Universities/Colleges."[6] This is bound to add a new thrust and dimension to the whole programme. The task calls for resource mobilization, administrative, training and communication roles besides a definite missionary zeal. Pedagogic inputs notwithstanding, the package of Adult Education essentially incorporates within it its deliberate strategies including literacy, awareness and functionality. The entire programme is directed towards the bulk of our population which is economically poor and illiterate. The tentative figure in the age-group of 15-35 years is estimated to be 110 millions by 1990. It is the segment of national population which is unorganised and unrepresented to voice thetr feelings and requirements to generate definite political awareness and will to evoke priority-oriented programmes for them. With all their social complexities and competitive ignorance and daunting social environment, poverty and superstition, no formal and uniform teaching learning system has been possible. That is why, this has called for an informal mode of education. It is more so for the reason that our formal system of Higher Education is massive in expenditure, erratic in priorities and primarily elitist in approach. While we have to cater to the common illiterate masses who cannot be fitted into any formal format or system of education in schools or colleges at their own convenience and pace. It is in this context that the role of communication strategies becomes paramount.

Role of Communication

In any stir to create social awakening, resurgence of new ideas and revolution in values directed towards social change, communication plays its strategic role. It is that process which establishes relationship for flow of information and sharing of experience between the leaders in thought, the planners of a policy, and the teachers of society and the basic human materia which is required to implement all these revolutionary ideas, plans and fundamental proposals directed towards social change. While formal teaching is a planned activity involving teaching material, skills and many other requirements, the success of non-formal approach of adult education to remove illiteracy remains solely linked to the effective role of writer-to-reader and speaker-to-listener communication and proper planning. More so when written language is yet to be learnt by the reader and is different from the spoken word. Under the formal system of education if the teacher is effective, comprehensive and well-versed in his communication skills, the learners do respond and participate in the teaching learning process because they get attracted and interested into that process of learning. Here in this non-formal system of education directed towards the adults, who are otherwise socially deprived and suffer from inferiority, poverty and exploitation, cognitive communication strategies have to be evolved in order to sensitize them. Communication here has not only to be of a conventional nature but has to have a doze of conversational confidence to imbue it so as to overcome the barriers of ignorance. The perceptual level of the adult males and females especially in the light of their background, inheritance, social environment and economic compulsions, has to be understood before offering literacy packages. The process of learning has to go to them as a vital need rather than as a casual activity or an optional proposition. They have first to be made to live the urge of learning through the national media effort. They have to be made to realise that learning is a social necessity for survival and a responsibility of life. "It is not an alternative; it is a necessity."[7]

The element of urgency that Gandhi had once spread through his message of freedom struggle, has to be recalled and propagated as the only way to bring about social change and resurgence and adopted in our communication strategies. As Gandhi could create a climate of social upheaval for freedom from bondage among the urban and rural masses through his simple and plain communication strategy without even the present day mass media, support and radio-TV coverage, adult education has also to be fitted into a similar model to appeal to the psychology of the people towards whom it is directed. As a primary need and national priority to implement it for improvement of the lot of 110 million people to be converted into socially responsible thinking part of our society, communication has to act as a powerful tool towards social engineering leading to development of this stratum of society in particular.

The society towards which adult education programme is directed, constitutes diverse ethnic and social groups which have to be identified before communication strategies relevant to each, standardized and adopted. The level of comprehension of each category of adults vis-a-vis its background, social constraints and economic limitations, has to be first understood. For instance, the illiterates in Himachal Pradesh are different from those of Uttar Pradesh, Bihar, Maharashtra, Orissa, Andhra Pradesh, Tamilnadu and North-eastern States of the country. The element of diversity exists not only because of cultural and linguistic disparities but also because of social values, cultural nuances and age-old traditions. The pockets of ignorance and poverty also vary and so also varies the acceptability of adult education packages. The communication system in each of these pockets will have to be modified in order to make our adult education packages relevant and acceptable to their optimum benefit. The approach will also involve a survey and study of their behaviour before finalising communication strategies for our adult education programmes. The teaching skills in this case have to measure upto the requirement of receivers notwithstanding usual teaching models on communication available in our teaching and management books. The presentation of the material will have to be correlated to better communication strategies and style, so as to bring the same within the reach of the otherwise onwilling and wearied learners. For this teachers have to be given the required local guidance to cultivate requisite confidence and communication skills so as to be useful to learners.

Communication Strategies

The communication system has to be persuasive as brought out by R. Jayagopal in his book on 'Adult Learning' (1985).[8] The efficacy of adult education programmes also depends upon the content of the material offered. The package of information and learning aids meant for the adult illiterates, has to be attractive and simple before its benefit can really reach them and before it becomes socially acceptable and beneficial to the learners. The whole proposition has to be viable and relevant to the socio-economic background and mental level of the learner. Here again the role of the communication process becomes relevant. The handling of the information and literacy modules acquires significance here. The flow of information and the understanding of functional variables contributes to the success of the packages. Besides these, the choice of medium is equally relevant. The language has to be the language of the learners. Here the language has not necessarily to be one of our accepted constitutional languages, but has to be conversational dialect with which the learner has lived in his poverty and diversity. The dialect has first to be assimilated by the teacher and then the learning material put into it to the advantage of the learner. The effective communication will only be possible if it is done in the regional dialect of language acceptable to the learners otherwise its retention will pose a problem and will result into only a one-sided enterprise or a monologue without actually reaching the learner and without realising the thrust of our programme.

As the role of communication is strategic and significant in spreading the cause of adult education, the implementation of the scheme has other overtones as well. Adult education cannot merely be considered as an academic activity in our Universities. It has to devise an innovative approach and plan a definite departure from our established procedures of teacher-taught relations and launch on a new communication role which is informal, dialect-based and rooted in the socio-economic environment and background of the adult learners who have to be offered the persuasive packages of learning rather than sold a compulsory scheme like the one with a subsidy or inducement attached to it by the government, the long-term effects of which are to be lost on them in the course of time. For this, the media such as the printed word, radio, T.V., posters, slide shows besides public shows, fairs and educative clips have to be prepared in such a way as to fit into the poverty and deprivation syndrome of our low class learners comprising adult male and female bonded, agricultural, migratory and slum living labour and all such others as have not seen the light of education as a liberating force of life. Under the NPE 1986 the recent initiative towards the establishment of Jana Shikshan Nilayams of clusters of villages, to provide for common cultural and literacy interaction, is a step towards better understanding and management of communication strategies to make the scheme flow to the persons towards whom it is directed for optimum results. Thus it could be seen that it would be only through a rethinking on communication strategies

(Continued on page 10)

Impact of the Observance of the National Literacy Day-1988

Rajammal P. Devadas*, Janabai Giri,** C.V.R. Indira***

Realising the imperative need for increasing the involvement of the students and teachers in the National literacy drive, the Avinashilingam Institute for Home Science and Higher Education for Women (Deemed University) constituted a committee consisting of students and teachers to plan, execute and evaluate the outcomes, in regard to the celebration of the World Literacy Day in September, 1988.

The plans for the observance of the National Literacy Day—1988, comprised a variety of programmes which elicited the participation of a large number of students and the faculty. The celebrations were inaugurated on 8th September, 1988, in the Avinashilingam Deemed University Campus, when Dr. Rajammal P. Devadas, Vice Chancellor, Avinashilingam Deemed University, Dr. K.M. Marimuthu, Vice Chancellor, Bharathiar University and Dr. M. Aram, Member of University Grants Commission participated in the deliberations. On that occasion, a seminar was organised on, "The role of universities in eradicating illiteracy among women". An exhibition on "Eradication of illiteracy" was also put up.

Inter-school and inter-collegiate oratorical contests were conducted on 9th September, 1988 both in Tamil and English on the theme, "The role of students in eradicating illiteracy among women". Twenty two participants from seven local colleges participated in these contests. Poster and Slogan competitions were organised on the theme, "Why adult literacy?", in which 32 participants for the Poster competition, and 45 for the Slogan competition from various faculties of the Avinashilingam Institute contested.

A rally was organised by the volunteers of the National Service Scheme on 9th September, 1988 in which students and staff carried self made placards decrying illiteracy and marched along a distance of two kilometers. The rally ended with a street corner meeting in a slum area, namely, Kamarajapuram which is one of the Adult Education Centres adopted by the Avinashilingam Institute.

A cultural programme was put up by the students of Avinashilingam Institute (Deemed University), which included group songs, musical play, folk dances, a skit and Villupattu all composed by the students. The All India Radio of Coimbatore relayed this skit on 14th October, 1988, and again on 21st October, 1988.

If the national efforts to promote adult education are to succeed, motivation of the learners is imperative. Therefore, the students and faculty of Avinashilingam Institute conducted motivation camps, in the villages and slums adopted for their Community and Social Services. Several motivation techniques such as door to door campaign, composing and reading Kavithas (poems), skits, group songs, solo songs, lectures with aids, use of folk media such as Villupattu, folk dances and conducting competitions were used by the different groups. In all these events, the students of the university participated fully. In order to assess the impact of the celebrations of the National Literacy Day on the students, a questionnaire was distributed to the students. The questionnaire carried questions relating to the objectives in celebrating the National Literacy Day by the University, the extent of the fulfilment of the objectives, the programmes carried out, participation of the students and suggestions for the eradication of illiteracy in the neighbourhood. The responses of the 1811 students were pooled, analysed, enumerated, categorised, and interpreted. This paper presents the nature and variety of the views expressed by the respondents on the various aspects of the National Literacy Day, in a consolidated form.

A. Objectives in Celebrating the National Literacy Day

Table I presents the objectives perceived by the respondents for the celebrations.

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Table I

OBJECTIVES IN CELEBRATING THE NATIONAL LITERACY DAY

S.No.	Objectives	N = 1811	
		Number mentioning	Percent
1.	To bring awareness to society and students regarding importance of education	1320	74
2.	To improve the percentage of literates	929	51
3.	To eradicate illiteracy	732	40
4.	To improve the standard of living of people and their knowledge about their rights	584	32
5.	To help students become aware of the national literacy drive and the aim to make 5 persons literate each	500	28
6.	To promote women's development and thereby the development of the nation and impart self confidence	494	27

It is gratifying that the students could perceive the important objectives of the celebration, particularly, the need to build awareness among the society and students.

B. The Extent of Fulfilment of the Objectives

The extent of fulfilment of the objectives stated by the students in celebrating the National Literacy Day—1988 was evaluated on a three-point scale : Full, Partial, Not at all. Table II gives the extent of fulfilment of the objectives.

Table II

EXTENT OF FULFILMENT OF THE OBJECTIVES

N : 1811

S. No.	Objectives	No. Stating the Objectives	Extent of Fulfilment					
			Fully		Partially		Not at all	
			No.	%	No.	%	No.	%
1.	To bring awareness to society and students regarding importance of education	1415	708	50	686	47	21	1
2.	To improve the percentage of literates	928	278	30	640	69	10	1
3.	To eradicate illiteracy	732	290	40	437	59	5	1
4.	To improve the standard of living of people and their knowledge about their rights	631	321	51	301	48	9	1
5.	To promote women's development and thereby the development of the nation and to impart self confidence	569	228	40	278	49	63	1
6.	To help students become aware of the literacy drives and the aim to make atleast 5 persons literate	489	131	27	288	59	70	14

The extent of fulfilment of the objectives range fully from 27 to 51 per cent and partially from 47 to 69 per cent. These responses show that the students have been helped to realise the objective of the observance of the National Literacy Day to a great extent. That the percentage of non-fulfilment was small 1-14, shows that the perceived objectives had also been fulfilled.

C. Events Conducted in the University

As for the events conducted in the Deemed University, the students were requested to indicate the events and also whether or not they were good on a two-point scale. The results are presented in Table III.

Table III

THE EVENTS CONDUCTED AND THEIR QUALITY

Number 1811

		Number mentioning				
S. No.	Events	No. Stating	Good	%	Otherwise	%
1.	Cultural Programmes	751	716	95	35	5
2.	Procession	609	609	100	0	0
3.	Songs	525	494	94	31	6
4.	Community and Social Service (CSS)	503	503	100	0	0
5.	Skit/play/drama	470	404	86	66	14
6.	Speech/Debate (Oratory)	410	322	79	88	21
7.	Competitions	324	324	100	0	0
8.	Poems	307	307	100	0	0
9.	Film Show	251	251	100	0	0
10.	Poster Competition	197	197	100	0	0
11.	Dance—drama	181	181	100	0	0

The responses ranged widely over eleven items from cultural programme, songs, literacy campaign, and drama. They show that the variety of events had caught the imagination of student participation to impart valid messages. Most of the events had been rated good. Only four items were stated 'Otherwise' by a few students (5-21%). Thus it is evident that the items conducted were meaningful.

D. Participation of the Students

The numbers of students who participated directly, besides being observers and spectators, are shown in table IV.

Table IV

THE PARTICIPATION OF STUDENTS

S. No.	Items	No. of Participation
1.	Community & Social Service (CSS)	1811
2.	Procession/Rally (by NSS Volunteers)	700
3.	Cultural Programme	379
4.	Songs	352
5.	Skit/play/drama	180
6.	Competition	149
7.	Film show	121

E. Student Proposals Eradication of Illiteracy

The activities proposed by the students to be undertaken by them to eradicate illiteray are listed in Table V.

Table V

ACTIVITIES STUDENTS WILL UNDERTAKE TO ERADICATE ILLITERACY

S. No.	Activities	No. of Respondents
1.	Teaching adult illiterates	421
2.	Each one teach one	365
3.	Visiting villages to Create awareness	353
4.	Emphasising importance of literacy	207
5	Giving free education for all	188

Five useful suggestions have emerged from the respondents themselves for contributing personally to the National Literacy Mission (NLM) movement. However, compared to the number responding in the previous tables, the number in this regard is smaller.

F. Suggestions for the University to Eradicate Illiteracy

The students gave many suggestions, as listed in Table VI for the University to take up for the task of eradicating illiteracy.

Table VI

SUGGESTIONS FOR THE UNIVERSITY TO ERADICATE ILLITERACY

S. No.	Activities suggested	No. of Respondents
1.	Conducting Literacy Centres	648
2.	Community and Social Service (CSS)	579
3.	Organising cultural programmes	244
4.	Audio-visual aids	193
5.	Each one teach one	149
6.	Adopting villages	136
7.	Visit to learning centres	128
8.	Educating through the media of exhibition, camps & seminars	101

G. Taking the Pledge

As a result of the enthusiasm and awareness created among the students and staff, to promote literacy among the masses, all the students and staff of Avinashilingam Institute (Deemed University) took the following pledge on 29th September, 1988.

National Literacy Day Pledge

"We the students and staff of Avinashilingam Institute for Home Science and Higher Education, (Deemed University), Coimbatore, hereby solemnly pledge that we shall each one of us, with all our heart and soul wipe out illiteracy from India and thereby make India a paradise to live in, where no man, women or child will be illiterate or uniformed".

Detailed plans are being worked out to involve all the students and staff to carry out the pledge on a massive scale.

Conclusion

This evaluation conducted at a micro level, in one university community provides an idea of what university students can do for national literacy. An overall glance of the detailed responses to the questionnaire reveal that the National Literacy Day celebrations have built awareness among the students. Furthermore, they have expressed the desirability of mass literacy drives for individual welfare, and national development at large. The suggestions given by the students are feasible and can be taken up by all the universities. □

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Pathways to Sustainable Agriculture

Dr. M.S. Swaminathan, President, National Academy of Sciences of India and President, International Union for the Conservation of Nature and Natural Resources delivered the Convocation Address at the Fifteenth Convocation of Mahatma Phule Agricultural University. In his learned address Dr. Swaminathan made a number of suggestions relating to agricultural research, education and extension in our search to the solution of a host of problems like, how are we going to make agriculture ecologically sustainable and at the same time economically attractive to young rural men and women ? How are we going to reverse the drain of brains and resources from the village to the town or city ? How are we going to make agriculture not only a means to the nutrition security of the urban population but also a means to the livelihood security of the rural poor ? How are we going to increase export earnings from the farm sector, remembering that a small country like the Netherlands earns more foreign exchange from agricultural exports alone than the entire foreign exchange earnings of our country ? Above all, how are we going to meet the energy and other input requirements for achieving the scale of production necessary to meet national needs ?...Excerpts.

The world is witnessing great changes in both agricultural production and consumption patterns. The era of inefficient agriculture is fast vanishing. Farming is becoming a knowledge-intensive profession, with biotechnology, space technology, information technology and management technology adding to the sophistication of production techniques in crop husbandry, animal husbandry, fisheries and forestry. Post-harvest management and processing are adding new dimensions to the potential for preparing value-added products from agricultural biomass. New processing techniques have enhanced the value of several of our traditional crops. For example, open ended spinning techniques have made the cultivation of medium staple cotton attractive. Instant coffee has made robusta coffee as valuable as arabica. Consumers in affluent countries are attaching great importance to "health foods", many of which are either vegetables or fruits.

Convocation

The beginning of the 21st century will pose the following challenges :

(a) Achieving Food and Nutrition Security on an ecologically sustainable basis for a human population of 100 crores, for which an annual production of 230-240 million tonnes of foodgrains is essential.

(b) Annual production of about 660 million tonnes of fodder for a farm animal population of 50 crores.

(c) Annual production of about 380 million tonnes of fuel-wood for domestic use.

(d) Meeting the needs of industry for various types of agricultural raw materials, such as cotton, jute and sugarcane.

(e) Remedying imbalances in agricultural advance with reference to areas and commodities.

(f) Converting farming into a knowledge-intensive and intellectually satisfying occupation, in addition to being economically rewarding, so that educated youth can be attracted to remain in villages.

(g) Achieving diversification of opportunities for skilled employment in villages for both men and women so as to increase household income and year-round employment. The contribution of agriculture to national income declined from 36.9 per cent in 1984 to 32.7 per cent in 1988, while workers dependent on agriculture were 51 per cent of the total workforce at the start of the First Plan and nearly 50.0 per cent last year.

(h) Increasing the management efficiency of small holdings through mutually reinforcing policies for individual initiative and group endeavour.

(i) Improving farm exports in a highly sophisticated and competitive international trade environment : and

(j) Preparing to meet the challenges of global change, which could result in changes in temperature, precipitation, ocean level and ultraviolet radiation.

The above tasks have to be accomplished in the context of diminishing land and water resources for agriculture and increasing fragmentation and dimunition of farm holdings. The number of families without any assets—either land or livestock or trees or fish pond or any other production unit—will increase. Even now over 90% of the operational holdings fall under the small and marginal farmer categories.

Youth below the age of 21 will constitute the majority of the rural population and they will be mostly literate. How are we going to make agriculture ecologically sustainable and at the same time economically attractive to young rural men and women ? How are we going to reverse the drain of brains and resources from the village to the town or city ? How are we going to make agriculture not only a means to the nutrition security of the urban population but also a means to the livelihood security of the rural poor ? How are we going to increase export earnings from rhe farm sector, remembering that a small country like the Netherlands earns more foreign exchange from agricultural exports alone than the entire foreign exchange earnings of our country ? Above all, how are we going to meet the energy and other input requirements for achieving the scale of production necessary to meet national needs ? I shall offer a few suggestions relating to agricultural research, education and extension.

Some Pathways to Sustainable Agriculture

(1) Reorient agricultural research and development activities with emphasis on integrating intellect, income and employment. This will call for integrated research on the opportunities for linking the primary, secondary and tertiary sectors of economic activity in villages in a symbiotic manner. For this purpose the ongoing Farming Systems Research (FSR) programme should be redesigned into a Rural Systems Research (RSR) programme. The RSR programme will have backward linkages with frontier technologies such as biotechnology, information technology and space technology and forward linkages with markets—both internal and international. The RSR will help to promote the growth of a purposeful services sector in our villages, where the children of landless labour families can find scope for meaningful employment. A major aim of RSR will be to optimise on an ecologically sustainable basis income and employment from the available land, water and credit resources. Production goals will be achieved if the R & D strategies are tailored to promote the livelihood security of the rural population.

(2) Reorient extension methodologies and public policies to promote desirable blends of individual initiative and group cooperation in farm management. This will be essential to enhance small farm efficiency and to spread ecologically sound technologies like saving and storing rain water, integrated pest management and improved post-harvest technology. Individual initiative, group endeavour and government support should become mutually reinforcing in order to achieve a reduction in the cost of production and to enhance productivity.

(3) Tailor technologies to suit diverse economic and ecological environments rather than develop technologies which need for their diffusion an altered growing environment. This will call for different R & D strategies for the following major Science and Technology Zones :

(a) *"Green Revolution" areas* : Here, both maintenance research to defend the gains already achieved and strategic research to raise the ceiling to yield further will be essential.

(b) *"Green, but no green revolution" areas* : Here new approaches to breeding and feeding of crops and social engineering techniques for promoting better water and pest management are necessary. Our national food security system will have to rely heavily during the nineties on the progress made in this zone.

(c) *Rainfed and Dry farming areas* : Here, land management, soil fertility and water conservation hold the key to elevating and stabilising farm income. New approaches to breeding to combine high yield potential with stability of performance are needed. Location specific technologies are essential and hence only micro-level planning will be meaningful.

(d) *Mountain eco-systems* : These require careful land use planning so as to combine sustainability with livelihood security.

(e) *Coastal eco-systems* : These require integrated planning from the point of view of agro-forestry, animal husbandry and aquaculture. Export orientation is necessary in coastal agriculture, since there could be considerable saving in transport costs.

(f) *Arid Zone* : Here the emphasis must be on the prevention of further desertification and on optimum resource use through integrated farming systems such as sylvi-pastoral and sylvi-horticultural systems. Irrigating arid lands could be either a blessing or a curse depending upon the way water is used and the cropping systems adopted.

(g) *Island eco-systems* : These provide unique opportunities for the conservation of biological diversity, research on introduced crops and farm animals, fisheries and forestry.

(4) Futurology : Anticipatory Research : Technologies to suit new situations such as irrigation for rainfed areas, new processing techniques, global climatic change as a result of the accumulation of green house gases in the atmosphere, and changes in consumer needs, should be developed through anticipatory research. Only then our agriculture will remain dynamic.

(5) Export orientation : In order to generate more income and employment in rural areas, we should expand agricultural trade—both home trade and international trade. Cost competitiveness, stability of supply and quality of the kind needed by the consumer, are all important to sustain and expand exports. Maharashtra has shown leadership in the export of fruits like mango and grapes and other horticultural products like onion. This expertise must be extended to more agricultural commodities.

Here again, a strong research group is needed. For example, we should do an intensive analysis of the likely agricultural commodity needs of the United Europe of 1992. United Europe will be a major trade outlet, in addition to North America, America, USSR, Japan and several developing nations.

To conclude, we are living in a dynamic world from the point of view of the new demands placed on technologies as a result of the imperatives of conservation, commerce and consumption. Our research systems have to be equally dynamic if we are to make our agriculture a powerful instrument for agrarian and rural prosperity.

We should also examine our training and teaching methods and carry out such changes as are necessary for making students experts in "do how". Only field work will enable us to understand the potentials and limitations of small farm agriculture. Agricultural Universities should also place considerable stress on non-degree courses. Former alumni should get opportunities for updating their knowledge and skills. Good quality teaching should receive as much recognition as good quality research. □

Communication Strategies in Adult Education

(*Continued from page 3*)

that we shall be able to revitalise Adult Education Programme to improve interest and attitude of adult illiterates to draw them into the mainstream of life and bring about that silent social revolution which Gandhiji had visualised through their participation and involvement. □

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Manpower Development and Utilisation in Agricultural Research

Prof. Anupam Varma, Head, Division of Mycology and Plant Pathology and Advanced Centre for Plant Virology at the Indian Agricultural Research Institute, New Delhi delivered the Sectional Presidential Address of the Section of Agricultural Sciences at the 76th Science Congress held at the Madurai Kamaraj University, Madurai. In a comprehensive oration on the theme "Manpower Development and Utilisation for Agricultural Research", Prof. Varma made some specific recommendations to meet the overall objective of development and proper utilisation of manpower for agricultural research. In view of the importance of the theme, we are pleased to publish a summary of the address together with the recommendations for the benefit of our readers.

Prof. Anupam Varma

Summary

India has made great strides in agricultural production, from a mere 51 million tonnes of foodgrains in the year 1950-51 to a record production of 170 million tonnes in the current year. This transformation in agricultural scenario was no doubt mainly due to the efforts of Agricultural Scientists. The self sufficiency achieved in agricultural production is highly commendable, but with ever swelling population and its increasing demands, efforts to accelerate and sustain the production level cannot be relaxed. Already, there are problems calling for vigilant attention. There continues to be a gap between average national yields and achievable yields. The productivity per unit area and per unit labour is considerably low indicating ineffective utilisation of resources like land and labour. Added to these are problems unique to our country like fragmentation of cultivable land, soil deterioration and erosion. Therefore, to achieve the target of producing 250 million tonnes of foodgrains by the turn of the century much greater research efforts backed by a highly trained and committed manpower will be required.

The projections for future demands of post-graduates in agricultural research and teaching show imbalance in the corresponding development in manpower in various disciplines of agriculture and allied subjects. This deserves immediate corrective measures. Further, for increasing agricultural out-put of the country, the research base will have to be diversified, strengthened and modernised. Modernisation of agricultural research would put additional stress on the existing scientific personnel and their management. It is important, therefore, to develop need based cadre strength of research organisations, giving full consideration to the development of new areas in research. In agriculture, new approaches like biotechnology and genetic engineering have to be utilised with full vigour. Apart from the new areas, emerging problems like those of pests and diseases in continuously changing farming systems, environment, land and water management, post-harvest losses, energy requirement, etc., will require greater inputs of research scientists. These will need a very careful planning for manpower requirement and development.

For the development of manpower for future requirements, postgraduate education will require restructuring of courses with limited admissions to M.Sc. and Ph.D. programmes based on research aptitude, to improve employment potential and to overcome additional stresses as a result of modernisation of agricultural research system. For new thrust areas of research and for tackling emerging problems, research organisations will require a system of inducting well trained scientists through lateral entry. Such expertise would also be necessary for development of appropriate technology for small holdings and for crops whose productivity has remained static. Often one hears about the possibility of meeting the staff requirement for new areas of work by redeployment. It is an important concept in manpower planning, but it cannot fulfil the specific requirements of research in frontier areas on which much greater focus has to be given in the years to come.

The existing modes of recruitment, emoluments, promotions, and working conditions of the agricultural scientists are not sufficiently attractive to induce promising young graduates to choose agricultural research as a career. The system needs major changes to attract the best talent in the country to the enormous task of improving agricultural production.

Recommendations

Some specific recommendation to meet the overall objectives of development and proper utilisation of committed manpower for agricultural research are :

- Uniform pattern of graduate programmes should be introduced in various Agricultural Colleges and State Agricultural Universities (SAUs).
- The country should establish Central Institutes for Agricultural Technology on the pattern of IITs to attract talented students in agriculture stream.
- Universities and Institutes required to develop manpower for agricultural research should concentrate on teaching and research functions.
- Arrangement of postgraduate courses on modular pattern coupled with some element of external evaluation will improve postgraduate teaching.
- M.Sc. programmes should be based on course work only to obviate the necessity of course work during Ph.D. programmes.
- The system of post-doctoral training should be promoted.
- Vacancies in various organisations should be regulated in a way that the best students of each batch are provided equal job opportunities.
- Basic 'philosophy' of the Agricultural Research Service of allowing scientists to pursue their area of specialisation and, in principle, reach the top salary grade without any need to change jobs should be restored.
- The salary structure of agricultural scientists must be brought at par with SAUs and other research organisations with equal opportunities for lateral induction and career advancement. It will be in the best interest of the country to introduce uniform pay scales and service conditions for all the scientists working in the universities and research institutions of the country.
- In all research organisations bureaucratic procedures should be minimised and paper work reduced for optimum utilisation of time of scientific personnel.
- The system of rotational headship and tenural directorship should be abolished.
- Scientists must be provided with sufficient funds to (a) develop and maintain good facilities for research, (b) have free access to information, (c) have opportunities for participation in national and international meetings, and (d) have opportunities for continuous upgradation of their expertise.
- The retired scientists are a big resource available in the country, we must develop methods to fully utilise their expertise.

विद्यार्थियों / अध्यापकों के लिये शुभ संदेश

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हिन्दी भाषी प्रांतों के शिक्षकों एवं विद्यार्थियों की लम्बे समय से चली आती मांग को पूरा करने के लि प्रश्न-बैंकों की इस श्रृंखला को हिन्दी भाषा में प्रकाशित करने का हमारा यह पहला प्रयास निश्चय ही लाभप्रद सिद्ध होगा। इसी आशा के साथ प्रस्तुत है :

जन्तु विज्ञान (Zoology)	मूल्य रु० 100.00
रसायन विज्ञान (Chemistry)	,, रु० 160.00
वनस्पति विज्ञान (Botany)	(प्रकाशन में)

अधिक जानकारी के लिये लिखें अथवा सम्पर्क करें —

अवर सचिव (प्रकाशन)
भारतीय विश्वविद्यालय संघ
ए.आई.यू. [illegible], १६ कोटला मार्ग
नई [illegible]-११०००२

NATIONAL BOOK WEEK

The National Book Week sponsored by the National Book Trust, India, is being celebrated between the 6-12 February, 1989. The main purpose in observing the Book Week is to focus the attention of people all over the country, men, women, children, teachers, educationists and policy makers on the pivotal role of books in providing the means for developing the individual potential, for promoting national integration and for highlighting the vital role of books in the social, cultural and economic development of the country.

The National Book Week will be inaugurated by the President of India, Shri R. Venkataraman at a special function organised in New Delhi on 6 February 1989. Well known authors and intellectuals will speak about books which had the greatest influence on their lives.

The National Book Week will be celebrated all over the country with multifarious activities such as debates, quiz programmes, book reading sessions, literary discussions and seminars. More than 40 book exhibitions will be organised in different university towns with the collaboration of the Federation of Indian Publishers.

Universities and colleges all over the country will undertake a variety of activities as part of the celebrations. Apart from organising debates, discussions, quiz programmes and seminars on subjects related to books, book reading sessions will also be held. Special displays of selected books in the libraries will be arranged and booksellers and publishers will be encouraged to hold exhibitions on the campuses.

Two conferences will be organised by the National Book Trust, in New Delhi. The first conference will focus on how books for children and neo-literates can be made more attractive and durable without adding too much to their cost of production. In the second, the theme will be the setting up of a book distribution agency at the national level for the promotion of books published by voluntary organisations and agencies in the public sector.

An inter-college elocution contest will be organised by the Federation of Publishers' & Booksellers' Associations in India and an inter-school book reading contest by the Delhi State Booksellers & Publishers Association.

Education Departments of Central and State Governments, University Grants Commission, All India Council for Technical Education, Indian Council of Agricultural Research, Navodaya Vidyalaya Samiti, Kendriya Vidyalaya Sangathan, Raja Rammohun Roy Library Foundation, State Boards of Secondary Education, Sahitya Akademi, Federations and Associations of authors, publishers and booksellers, Doordarshan and Akashvani Kendras and a large number of other organisations all over the country are actively collaborating with the National Book Trust in the celebration of the National Book Week.

Deconstruction of the Indian Village

Prof. Jan Breman, one of Holland's foremost sociologists who has specialised on India and Indonesia presented a paper on "The Shattered Image, Construction and Deconstruction of the Village in Colonial Asia", at the Centre for Social Studies, South Gujarat University Campus, Surat. Prof. S.P. Punalekar, Director of the Centre for Social Studies presided.

One of the fundamental questions confronting students of sociology in India is whether the village can be a unit of study ? There have been western scholars on Indian society such as Dumont and Pocock who have held that a village is an architectural and demographic entity and not a sociological unit. Indian scholars such as M.N. Srinivas and A.M. Shah have put up a spirited defence of the Indian village as a social fact, while at the same time exploding the myth of the self-sufficient village.

The village and the caste are two foci of community feeling in rural India. The ordinary villager feels that he belongs to these two entities. Prof. Breman who has studied a village in south Gujarat which is in the midst of rapid economic change and where in and out-migration is considerable raised doubts about whether the village community can any longer be identified as the social foundation of the peasant economy in Asia. Given the highly differentiated nature of the village economy and the substantial mobility of people the idea of village solidarity came under heavy criticism in his paper.

If Dumont and Pocock have opined that the real unit of study in India should be caste and not the village, Prof. Breman seemed to argue it should be neither of these but class and wider socio-political realities.

In the discussion that followed a host of questions Prof. Breman responded to a host of questions by saying that a good bit of what passes for village solidarity is largely sentimentality expressed in such terms as village brother, village sister, village prestige and so on. At the same time India being a complex society subject to varying pressures, one cannot categorically assert that there is no feeling of 'village solidarity, altogether.

Prof. Breman is also a co-chairman of Indio-Dutch Programme, sponsored jointly by India and Holland. Among his many works, Prof. Breman is particularly noted for his book 'Patronage and Exploitation based on a study of the agrarian relations in rural south Gujarat.

Professor Breman will deliver a series of lectures at different universities and research institutes all over the country. This is being sponsored by the Indian Council of Social Science Research, New Delhi.

Pondicherry Varsity Academic Staff College

The Academic Staff College (ASC), Pondicherry University started functioning from October 1987 with the main objective of improving the quality of higher education. The College caters to the needs of Pondicherry University Departments, Annamalai University, Colleges affiliated to Pondicherry University and South Arcot Colleges affiliated to University of Madras and to some extent universities and colleges on an All India basis. During the year 1987-88, the ASC conducted three Orientation Programmes for University & College Teachers and a total number of 109 teachers belonging to various faculties attended the programmes. Each of the Orientation Course was for a duration of four weeks and was fully residential.

The orientation courses are aimed at achieving the following objectives :

(a) understand the significance of education in general, and higher education in particular, in the global and Indian contexts;
(b) understand the linkages between education and economics and socio-cultural development with particular reference to the Indian polity where secularism and egalitarianism are the basic tenets of society;
(c) understand the role of a college/university teacher in the national goal of achieving a secular and egalitarian society;
(d) acquire and improve basic skills of teaching at the college/university level;
(e) be aware of the developments in specific subjects;
(f) understand the organization and management of a college/university and to perceive the role of a teacher in the total system; and
(g) utilize opportunities for development of personality, initiative and creativity.

Four components namely (a) Awareness of linkages between Society, Environment, Development and Education, (b) Philosophy of Education, Indian Educational System and Pedagogy, (c) Subject Upgradation, and (d) Management and Personality Development were included in the curriculum.

In addition to the regular orientation courses, the ASC also conducted an "On the Job Training Programme" for the Faculty of affiliated colleges of Pondicherry University from 4th May to 7th May 1988. In this programme 247 college teachers participated. For the conduct of Orientation Course and on the Job Training Programme services of about 80 High level experts drawn from all over India were utilised.

In the year 1988-89 so far 3 Orientation courses have been conducted in which 67 teachers including 4 from Himachal Pradesh, and 1 each from Bihar and Maharashtra were trained. 2 more are planned for the year.

As a special programme for the year, one day seminar on "Education Management with special reference to In-service Teacher Education of College Lecturers" was also organised on 9th September, 1988.

Kakatiya Youth Festival

A week long youth festival to mark the birthday of Swami Vivekananda and birth centenary of Pandit Jawaharlal Nehru was organised by the NSS Unit of Kakatiya University.

Seminars, literary competitions, curricular and extra-curricular activities were conducted in which 18 colleges of the district took part.

Dr. L. Vasantha, Principal of the Kakatiya Medical College, who was the chief guest at the concluding function on January 16, stressed the need to give a sense of direction, purpose and hope to the youth which constitute a vital force in the nation-building activity. If their energies were not identified and properly channelled, it might result in a great loss to the country, she apprehended. Celebrations of this type synchronizing with the birthday of Swami Vivekananda and birth centenary of Panditji would inculcate in the youth a spirit of awareness to emulate these two saints who visualised a political system to the best of humanity, the Principal felt. Dr. Vasantha dwelt at length on the need for disciplined youth and their role in bringing about cultural, intellectual, sociological changes in the well-being of the nation.

Prof. V. Bhasker Rao, Principal of the University Campus College, presided.

Mr. K. Ravinder Raju, a participant in the cycling from Warangal to Kanyakumari under 'adventure programme' who returned recently, narrated his experience in the journey.

Mr. Samba Murthy of the University College, Mr. Muralidhar of L.B. College and Master T. Praveen Kumar (12), stood first, second and third in the mini-marathon open to all from thousand pillar temple to university campus conducted on the occasion.

Mr. K. Venu of Kakatiya Degree College bagged the 'youth award 1989.'

Syllabus Workshop

The Examination Reform Unit of the South Gujarat University, Surat organized a two-day workshop on 8th & 9th January, 1989 to discuss the syllabi for various papers in the subject of Economics, Three Year B.A./B.Com. level. This has come in force from the year 1988-89. The main thrust of the workshop was to spell out in detail the objectives and the course content so that the level and depth can be clarified and understood in proper perspective.

Prof. B.V. Mehta, Chairman, Board of Studies in Economics explained the importance of such a workshop and cautioned the participants against the dangers of different interpretations of syllabus by different people. The syllabus should be unambiguous and understood in the same way by all concerned, he added.

The Examination Reform Unit regards Syllabus as a minimal reform programme and has stressed on demarcating syllabus into well defined units of content alongwith a topicwise breakdown. The units in the syllabus should be arranged in logical sequence with proper numbering and weightage assigned to various units.

During the workshop, syllabi of nine papers were discussed. Forty-seven teachers participated in the workshop which had senior and experienced teachers worked as resource persons.

Duty-free Import of Research Equipment

The Centre will launch, it is reported, a passbook scheme for research institutions in the country to facilitate the import of duty-free consumables for research purposes. Passbooks will be issued to all public-funded non-commercial research and development institutions, including universities and laboratories of the Council of Scientific and Industrial Research (CSIR).

The proposal covers import of duty-free consumables worth Rs. 50 lakhs a year without obtaining the "essentiality certificate" or "not made in India certificate" and import of duty-free equipment worth Rs 1 crore a year.

The Department of Science and Technology will be the nodal agency for issuing passbooks to public-funded non-commercial laboratories and the Ministry of Human Resource Development will be the nodal ministry for universities and deemed universities.

This step is reported to have been taken on the basis of a suggestion made by the Prime Minister, Mr Rajiv Gandhi, at the 75th session of the Indian Science Congress at Pune last year. The new measure was announced in the report of the inter-ministerial task force on the recommendations of the last science congress, presented at the 76th session of the congress held at Madurai.

Fellowships for Science Communicators

The Department of Science and Technology is reported to have set up visiting fellowships for science communicators.

Aimed at popularizing science and technology and stimulating a scientific temper among people, these fellowships, under the National Council for Science and Technology Communication scheme, will also be available for other specific projects.

These two and three-week fellowships will consist of a stipend of Rs. 1,000 a week in addition to travelling expenses.

Science correspondents and others holding a regular position in a research, teaching or media institution are eligible for these fellowships.

National Institute for Advanced Studies

Noted industrialist J.R.D. Tata launched a pioneering institution in Pune on 23 January, 1989. The National Institute of Advanced Studies, as it will be known, would bring together exceptionally gifted men and women from different streams of national life from both the Government and non-Government sectors.

Sponsored by the Sir Dorabji Tata Trust, the Institute will be located at the Tata management training centre pending construction of a new building.

Speaking on the occasion, Mr. Tata said that the institute was like "a ship about to venture on uncharted seas". The concept of the institute was outlined in 1985 by a committee of eminent men in public life. The committee consisted of the late Professor Rustoum Choksi, trustee of the trust, the late Mr. L.K. Jha, former chairman of the Economic Administration Reforms Commission, Prof. M.G.K. Menon, member of the Planning Commission, Dr. Satish Dhawan, former chairman of the Indian Space Research Organisation, Dr. Homi Sethna, former chairman of the Atomic Energy Commission, and Prof. Philippe Olmer, of the University of Paris.

Research Project on Environmental Radioactivity

The Department of Atomic Energy, Government of India, has sanctioned Mangalore University a grant of Rs. 3.15 lakhs for a Research Project on "Base line Radiation Background Studies in the Environment of Coastal Karnataka including Kaiga and Arabic area". Dr. K. Siddappa, Professor of Physics and Secretary, Indian Society for Radiation Physics, is the Principal Investigator of this three year Project. Prof. N. Lingappa, Chairman of the same department is the Co-investigator. The main objective of this project is to collect and evaluate reliable scientific data on the base line radiation level in the environment of Coastal Karnataka.

Academic Staff College at JNU

With the appointment of Professor Amitabh Kundu as the first Director, the newly set-up Academic Staff College at the Jawaharlal Nehru University, is all set to start functioning from the middle of April with the first batch of teachers in Economics undergoing a six-week Orientation course.

The Academic Staff College has been set-up for the purpose of exposing new entrants into the teaching profession, to the developments in knowledge, research methods and the processes of communication of knowledge to students. The College which is slated to be a separate entity as a UGC sponsored project, would focus upon orientation programmes for teachers in respect of general academic environment as well as the developments in the field of their studies or specialisation.

To start with, the UGC has identified two subjects—Economics and Political Science in which general and special orientation of teachers would be done. Nearly 60 applications have already been received in both these subjects. The first batch of teachers in Economics will start undergoing Orientation Programme from April while the second batch in Political Science would follow.

The college will be an Inter-University Institute catering to the needs of a number of colleges and Universities in the country. The college shall have two-tier advisory bodies to guide its activities in respect of academic programmes.

The selection/nominations of trainees to the Academic Staff College shall be on all-India basis since the University has an all-India responsibility in terms of the JNU Act.

New Project for TIET

The Petroleum Conservation Research Association, New Delhi has sanctioned a Rs. 25,000 Research Project entitled "Feasibility Study on the Use of Low Grade High Viscosity Oil in Diesel Engines", to the Thaper Institute of Education and Technology (TIET) Patiala. Dr. J.K. Sharma, Head, Energy Systems Division of the Thapar Corporate R&D Centre at the TIET is the Principal Investigator of the Project.

New Research Journal

Journal of Pure and Applied Physics, an international research journal, brought out by the School of Optics, Hyderabad was formally launched by Dr. Maria Louisa Calvo, Professor of Optics, Universidad Complutense de Madrid, Spain who released its inaugural issue at a simple but impressive ceremony in Hyderabad. Edited by Prof. P.K. Mondal, President of the School of Optics and Prof. of Physics, at the Osmania University, Hyderabad, the journal now a quarterly for the first two years

1989-1990 is proposed to be converted into a bimonthly for the next two years 1991-92 and a monthly thereafter. Further details can be had from Prof. P.K. Mondal, President, School of Optics. 1-10-78, Ashoknagar, Hyderabad-500 020.

Coaching Classes for Minorities

University Grants Commission (UGC) has approved the proposal of Nehru College, Hubli as recommended by the Karnatak University, Dharwad to set up Coaching Classes Centre for Competitive Examination for educationally backward minorities like Muslims, Christians, Jains, Sikhs, Buddhists, Neo-Buddhists at Nehru College, Hubli and has agreed to provide financial assistance of Rs. 6.50 lakhs for five year period.

The centre will provide coaching classes for various competitive examinations for the Central/State level/Public Undertakings/Banking Services and/or admission to various professional courses and management courses and also for acquiring proficiency in Secretarial courses, short-hand and typing.

AIU News

Inter-Varsity Elocution Contest

To mark the birth centenary of Pt. Jawahar Lal Nehru, Association of Indian Universities (AIU) in collaboration with the University Grants Commission (UGC) will organise Inter-University Elocution Contests on Zonal and National levels. "Nehru : Architect of Modern India" has been proposed as the theme for the Elocution Contest.

The Elocution Contests will be organised on the same lines as the Inter University Zonal Youth Festivals. Best participants from each Zone will participate in the National Elocution Contest likely to be held in Second/Third week of March 1989. Only bonafide students below 25 years of age and pursuing a full time course of study in a University or a college affiliated to the University will be eligible to participate in the contest. A University can sponsor a maximum of two participants. Further details can be had from the Cultural Officer, AIU or the Zonal Officers as per details given below.

S. No.	Zone	Venue	Date	Zonal Officer
1.	East	Guru Ghasidas University, Bilaspur	Feb. 14, 1989	Prof. T.D. Sharma, Dean, Student Welfare, Guru Ghasidas University, Bilaspur.
2.	West	Poona University, Pune	to be Announced	Dr. V.G. Dedgaonkar, Reader, Deptt. of Chemistry, University of Poona, Pune.
3.	North	Haryana Agricultural University, Hisar	Feb. 22-23, 89	Prof. Kamlesh Kumar, Director, Student Welfare, Haryana Agricultural University, Hisar.
4.	South	University of Hyderabad	Feb. 22-23, 89	Registrar, University of Hyderabad, Hyderabad.

Exact Dates & Venue for the National contest will be announced shortly.

Source : Cultural Officer, AIU.

News from UGC

INSAT-1B Programme of UGC

Between 16th February to 28th Feb., 1989 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV Network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

16.2.89

"Shift Registers"
"Modern Methods of Archaeological Excavation"
"Should Indians write in English—I"

17.2.89

"Cosmic Screen"
"Folklore & Folkloristics
"Silicosis—An Industrial Disease"

18.2.89

"Indian Stick Fighting—I"
"James Whistler—Etchings"
"An Insult to Civilization"

19.2.89

No Talecast

20.2.89

"Elasticity—Stress and Strain"
"Leadership in Management"
"Pearl Culture"

21.2.89

"Chemistry of Man Made Fabres—II"
"Study Skills"
"Of Mind and Matter"

22.2.89

"In Search of the Past—The Roman Empire"
"Infection & Immune Response'

23.2.89

"Counters"
"Earthquakes"
"Should Indian Write in English—II"

24.2.89

"Who is Out There ?"
"Invisible Work"
•'Endangered Birds of India"

25.2.89

"Handicrafts of Andhra Pradesh—II"
"Paraplane"
"The Gas in Your House"

26.2.89

No Telecast

27.2.89

"Fictitious Forces—A Poser"
"A Talk With Prof. John K. Galbraith"
"Perestroika in Agriculture"

28.2.89

"Chemistry of Man Made Fibres—III"
"Instructional Process in Industrial Training"
"University Round Up"

Communication

Autonomy in Action

Dear Sir,

The main objectives of the Lakshmibai National College of Physical Education, Gwalior are to improve the quality of professional Teachers of Physical Education, to develop a National Physical Education institution to serve as a model for other colleges of physical education in the country, to provide professional and academic leadership to other colleges of physical education in curricular development, professional programmes etc., and to serve as a centre of excellence in physical education, to promote research and to disseminate research findings.

In recognition of the national status of this institution and the contribution it has made to the development of the profession during the past 25 years the Jiwaji University, Gwalior conferred the status of Autonomous College to this college from 1st July, 1982.

As a result of autonomy the main achievement of the college is curricular development. The college has up-dated the courses in physical education keeping in mind the modern trends and techniques in physical education. Thus the college has been able to develop the curriculum almost at par with other developing countries in the world.

2. The college has been able to arrange Refresher/Research Orientation Courses in Physical Education and Sports Sciences in order to give insight and up-date the knowledge of the teachers of physical education. Such courses are held every year.

3. The college has been laying more and more emphasis on the Research in Physical Education and allied subjects for which the Government of India, Ministry of Human Resource Development awards M.Phil, Ph.D. scholarships and also financial assistance for the short term and long term projects. During the years of autonomy the college has been able to develop facilities for doctoral and post-doctoral studies and as a result the college has produced one D. Litt. and 25 Ph.Ds. in Physical Education.

The college has also been trying to strengthen the faculty by giving them special training in India and abroad.

The examinations system at the college has been simplified and results are declared on scheduled dates.

Yours faithfully,
Dr. A.K. Uppal
Prof. & Dean
Lakshmibai National College
of Physical Education,
Gwalior.

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month', while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research Scholars and students of education are welcome to use these resources. The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

HUMANITIES

Philosophy

1. Kalpana, B.G. *A research in the social philosophy of the Bhagavadgita.* Bangalore. Dr. Jalihal, Reader, Department of Philosophy, Bangalore University, Bangalore.

2. Ray, Namendra Narayan. *Early vedantic thought from the Upanisads to the Brahmasutra.* Gauhati. Dr. Dilip Kumar Chakravarty, Reader, Department of Philosophy, Gauhati University, Guwahati.

Language & Literature

English

1. Bandyopadhyay, Ranit Kumar. *A critical study of Robert Browning's dramas.* Calcutta.

2. Chacko, P.M. *The confessional poetry of Nissim Ezekiel as an attempt at self-discovery.* Kerala. Dr. N. Viswanathan, Reader, Institute of English, University of Kerala, Trivandrum.

3. Damabi, Sohrab Mirzaei. *Treatment of death in Ernest Hemingway's fiction.* Panjab.

4. Premachandran, T.M. *Fiction of D.H. Lawrence and M.T. Vasudevan Nair : A thematic study.* Madurai.

5. Sankaran Kutty, M. *A study of the aspects of alienation in the novels of Ruth Prawer Jhabwala.* Madurai.

6. Soni, Kishore U. *Mathew Arnold and T.S. Eliot as critics.* Vikram. Dr. L.S. Sharma, Bank Colony, Davas Road, Ujjain.

Russian

1. Iyengar, Mala. *Structural and semantic conditionability of syntactic transformations in translating socio-political texts (Russian-English).* JNU. Dr. S.C. Mittal, Centre of Russian Studies, Jawaharlal Nehru University, New Delhi.

Sanskrit

1. Bandyopadhyay, Sibabrata. *Asvalayaner anuvartane kayeti srauta yajner sameekshatmak adhyayan.* Burdwan. Prof. Gopalnath Bhattacharyya, Department of Sanskrit, University of Burdwan, Burdwan.

2. Jain, Suprabha Kumari. *Pramukh Jain agamon mein Bharatiya darshan ke tattwa : Vaidik evam Baudh chintan dharaon ke vishesh sandarbh mein.* Devi Ahilya. Dr. P.N. Kavthekar, Anup Nagar, Indore.

3. Kamla Devi. *Prakrit bhashayen aur Mrichchkatikam : Ek bhashik adhyayan visheshtah kriyaroopon ke sandarbh mein.* HP.

4. Narasimha Reddy, D. *A study of yogapada of Padmasamhita in the light of Patanjali Yogadarsana.* Venkateswara. Dr. S.B. Raghunathacharyulu, Department of Sanskrit, Sri Venkateswara University College, Tirupati.

5. Rama Krishna, Sripada. *Sri Kasikapadamanjareekarayoh sowmudi karasya ca matataratamya vicharah.* Andhra.

6. Sulochanadevi, L. *Sanskrit mahakavyas of Kerala : A historical survey.* Kerala. Dr. K. Vijayan, Reader, Department of Sanskrit, University of Kerala, Kariavattom.

Pali

1. Yasui, Ryude. *Theory of soul in theravada Buddhism.* Calcutta.

Hindi

1. Barman, Amulya Chandra. *Post independence Hindi and Assamese dramas : A comparative study.* Gauhati. Dr. Hiralal Tiwari, Reader, Department of Hindi, Gauhati University. Guwahati.

2. Bechan Singh. *Hindi kahaniyon mein madhyavarg.* Manipur. Dr. J.P. Singh, Assoc. Prof., Department of Hindi, Manipur University, Imphal.

3. Gupta, Geeta. *Tulsi sahitya mein chitrit manav mulya.* HS Gour. Dr. Bhagirath Mishra, H/9 Padmakar Nagar, Makronia Camp, Sagar.

4. Meera Rani. *Rastriya navjagaran aur Hindi patrakarita, 1851-1900.* Aligarh. Prof. R.N. Bhramar, Reader, Department of Hindi, Aligarh Muslim University, Aligarh.

5. Pathak, Laxmi. *Saket ke shabdon ka arthatattwik adhyayan.* Durgawati. Dr. T.N. Shukla, Department of Hindi, Rani Durgawati Vishwavidyalaya, Jabalpur.

6. Sharma, Jagannath Das. *Chhatisgarh ke mata seva vishayak lok geeton ka sahityik evam sanskritik anusheelan.* Ravishankar. Dr. D.K. Jain, Department of Hindi, Govt. Chattisgarh College, Raipur.

7. Sharma, Madhu Bala. *Hindi ke pragativadi sameekshasiddhanta aur prayog.* Aligarh. Prof. V.N. Shukla, Department of Hindi, Aligarh Muslim University, Aligarh.

8. Sharma, Subhash Chandra. *Janwadi natya andolan : Swarup aur vikas.* Jamia. Dr. S. Asghar Wajahat, Reader, Department of Hindi, Jamia Millia Islamia, New Delhi.

9. Shastri, Bharati. *Shrimad Bhagwat evam Shri Ramcharitmanas ke bhakti tattwa ka tulnatmak adhyayan.* Calcutta.

10. Sheikh Abdullah. *Swatantrayottar Hindi katha sahitya mein samajik evam sanskritik sangharsh chetana.* Nagpur. Dr. Usha Sajapurkar, Prof. and President, R.S. Bidkar College, Hinganghat.

11. Shrivastav, Nalini. *Hindi nibandh kee parampara mein Bakhshi Jee ke yogdan ka anusheelan.* Ravishankar. Dr. Ganesh Khare, Principal, Govt. K.D. Girls College, Rajnandgaon.

12. Singh, Simmi Ravindra. *Bharatiya sangeet mein shudh shabd ka vishleshanatmak adhyayan.* Indira Kala. Dr. Indrani Chakravarti, Summerhill Cottage, Summerhill, Shimla.

13. Singh, Tripati. *Hindi ke ritikaleen pramukh darbari kaviyon ke kavya mein sangitik tattwa.* Indira Kala. Dr. R.K. Shrivastava, Head, Department of Hindi, and Dr. R.S. Jaiswal, Lecturer, Department of Musicology, Indira Kala Sangit Vishwavidyalaya, Khairagarh.

14. Srilakshmi, Bhamidi. *A comparative study of the novels of Rajanipanikar and Muppala Ranganayakamma.* Andhra.

15. Surinder Kaur. *Shri Vyathit Hridai ka atmvikasatmak sahitya : Manav mulyon ke sandarbh mein.* Panjab.

16. Sushila Devi. *A historical and comparative study of eastern Hindi phonology.* BHU. Dr. S.S. Mishra, Prof. and Head, Department of Linguistics, Banaras Hindu University, Varanasi.

17. Tukol, Usha T. *Adhunik Hindi kavya mein upekshit varg.* Bangalore. Dr. Mithali Bhattacharjee, Department of Hindi, Bangalore University, Bangalore.

18. Vohra, Hem Raj *Chandigarh, Panjab, Haryana tatha Himachal Pradesh ke rajyon kee madhyamik star kee Hindi pathya pustakon ka manav-mulyon ke sandarbh mein vishleshanatmak adhyayan.* Panjab.

Urdu

1. Rafathunnisa Begum, M. *Akhtar ul-Eman : Life and works.* Venkateswara. Prof. Mohammad Sulaiman Khan, Department or Urdu, Sri Venkateswara University College of Arts and Sciences, Tirupati.

2. Sheikh Abdul Mannan Abdul Sattar. *Sociolinguistic study of Muslim personal names in Vidarbha.* Nagpur. Shri R.P. Saxena, Department of Linguistics, Nagpur University, Nagpur.

Bengali

1. Choudhury, Tarit Kumar. *A study of Navanatya Movement and its three playwrights : Bijan Bhattacharya. Tulsidas, Lahiri and Digindra Chandran Bandyopadhyay.* Gauhati. Dr. Usha Ranjan Bhattacharjee, Reader, Department of Bengali, Gauhati University, Gauhati.

2, Guin, Mrityunjay. *Prachin Bangla sahitya lokacharo-lokaviswas : Charyapada theke Bharat Chandra.* Calcutta.

3. Paul, Krishna Ranjan. *A critical study of the literary criticism of the works of Bankim Chandra in Bengali, 1865-1937.* Gauhati. Dr. Dipak Sen, Reader, Department of Bengali, Gauhati University, Guwahati.

4. Ray, Tapas Kumar. *Bangla bhashay vigyaner anusheelan or sahitye taar prabhav.* NBU.

5. Sarkar, Suryakumar. *Bangla betar natak : Rup rupayan-o-janamanase abedaner itibritta.* Calcutta.

Assamese

1. Bharali, Arunima. *Some aspects of mediaeval Assamese culture as reflected in mediaeval Assamese literature.* Gauhati. Dr. Maheswar Neog. Prof., Department of Assamese, Gauhati University, Guwahati.

Oriya

1. Pani, Naresh Chandra. *Oriya kavya nayika Bibartana mulaka-o-tulnatmaka adhyayana : Oriya sahityare prathama kavya Rama Biva tharu binsha Satavdira kavya Indurekha paryanta.* Sambalpur. Dr. B.K. Satapathy, Principal, N.A.C. College, Burla.

Marathi

1. Patil, Bhaskar Narayan. *Shri Vasant Kanetkar Ani Shri Vijai Tendulkar yanchya samajik natakancha tulnatmak adhyayan.* Devi Ahilya. Dr. Anil Gajbhiye, Indrapuri Colony, 161 Pipalyarao, Indore.

Arabic

1. Khan, Abdur Rahim. *Contribution of India to the development of Arabic literature.* Nagpur. Shri Syed Abdur Rahim, Institute of Arts and Social Sciences, Nagpur.

2. Bharathy, S. *A critical study of the creative works of K. Rajanarayanan.* Madurai.

Kannada

1. Basavlingayya Amarayya. *Kodekalla Basavanna-Ondu adhyayana.* Karnatak. Dr. M.M. Kalburgi, Prof., Institute of Kannada Studies, Karnatak University, Dharwad.

2. Gangamma, H.S. *Mudanuru Dasimayya : Ondu adhyayana.* Karnatak. Dr. V.S. Kambi, Reader (Retd.) Institute of Kannada Studies, Karnatak University, Dharwad.

Telugu

1. Janardhanam, K. *Rayalaseema Padakavulu.* Venkateswara. Dr. K. Sarvottama Rao, Department of Telugu, Sri Venkateswara University College, Tirupati.

2. Ramachandrudu, K. *Social status of women in folk songs of Chittoor District.* Venkateswara. Prof. M. Subba Reddy, Department of Telugu, Sri Venkateswara University College, Tirupati.

3. Sarma, P.V.S.R.K. *Seshendra (Gunturu Seshendra Sarma) krutulu-anuseelanam.* Hyderabad. Prof. G.V. Subramanyam, Prof. and Head, Department of Telugu, University of Hyderabad, Hyderabad.

4. Shaik Javed Hussain. *Progressive poetry in Telugu.* Venkateswara. Prof. G.N. Reddy, Department of Telugu, Sri Venkateswara University College, Tirupati.

Geography

1. Kumar, Purnima. *Durgapur Industrial Complex : A study of industrial geography.* Burdwan. Prof. M.R. Choudhuri (Retd.), Department of Geography, University of Burdwan, Burdwan.

2. Mallik, Sukla. *Aerial association of population with some selected factors in Hooghly District, West Bengal.* Calcutta.

3. Rohatagi, Pratima. *Industrial potential of Koch-Behar, West Bengal : A study of industrial Geography.* Burdwan. Prof. M.R. Choudhuri (Retd.), Department of Geography, University of Burdwan, Burdwan.

4. Srinivasulu, S. *Physical ecology and agriculture : A case study of Raipur Taluk.* Venkateswara. Prof. N.B.K. Reddy, Department of Geography, Sri Venkateswara University College, Tirupati.

5. Yadav, Shio Muni. *Rural settlement dispersion in Vaishali District : Classification and correlates.* Bihar. Dr. Pratap Singh, Head (Retd.), Department of Geography, University of Bihar, Muzaffarpur.

History

1. Agrawal, Kalpana. *Maurya tatha Gupta kaleen samajik-arthik sansthaon ka tulnatmak adhyayan.* Durgawati.

2. Bhaumik, Manotosh Chandra. *Kulinism in Bengal.* Calcutta.

3. Chenna Reddy. P. *Guilds in mediaeval Andhra Desa, A.D. 1000 to A.D. 1500.* Venkateswara. Dr. K.S. Ramamurthi, Department of Indian Culture, Sri Venkateswara University College, Tirupati.

4. Gandhi, Amrit Varsha. *Nehru and Indian communists, 1947-1964.* HP.

5. Hauzel, Nengkhanpau. *History and culture of the Paite Tribe.* Manipur. Dr. S.N. Pandey, Department of History, Manipur University, Imphal.

6. Krishna Rao, M.V.N. *Indus script deciphered.* Nagpur.

7. Parmar, Surinder Singh. *History of the Bhartiya Jana Sangh in Punjab, 1952-1977.* Panjab.

8. Prasada Rao, P.S.V.S.V. *Muslim impact on Indian culture and society in the Deccan 14th-17th centuries A.D.* Sathya Sai. Prof. K. Krishnamoorthy, and Prof. S.H. Ritti, Visiting Prof., Department of History and Indian Culture, Sri Sathya Sai Institute of Higher Learning, Prasanthinilayam.

9. Soombria, Nirmal Kumar Singh. *Intercommunal relations in Jammu and Kashmir from 1846-1931.* Jammu. Dr. M.L. Kapoor, Reader, Department of History, University of Jammu, Jammu.

10. Vasudevan, Ravi S. *Strategies in the Congress, 1934-39.* JNU. Prof. Bipan Chandra, Centre for Historical Studies, Jawaharlal Nehru University, New Delhi.

INDIAN STATISTICAL INSTITUTE

ADMISSION NOTICE 1

Session : 1989-90

Applications are invited for the following courses/fellowships for which duration, values of monthly stipend/fellowship, annual contingency grant and eligibility conditions are briefly described below. Further details and other conditions are available in the prospectus. Selection of candidates is based on academic record, written tests and interviews.

1.1 **Bachelor of Statistics (Hons.)**: *Duration*: 3 years; *Stipend* : Rs. 250/-; *Contingency grant* : Rs. 750/-; *Eligibility* : Successful completion of 10+2 years of secondary education (or equivalent thereof) with Mathematics and English.

1.2 **Master of Statistics** : *Duration :* 2 years; *Stipend* : Rs. 400/-; *Contingency grant* : Rs. 1000/-; *Eligibility* : 3-year Bachelor's degree with Statistics and Mathematics as full subjects or equivalent qualification, obtained after twelve years of secondary education. Those without Statistics, but having outstanding mathematical ability, may also be considered. Holders of Statistician's Diploma/Senior Diploma of ISI are eligible for admission to the second year of the course.

1.3 **Master of Technology in Computer Science** : *Duration* : 2 years; *Stipend* : Rs. 1000/-; *Contingency grant* : Rs. 1500/-; *Eligibility* : Master's degree in a relevant subject or Bachelor's degree in Engineering/Technology or equivalent qualification and knowledge of relevant topics of Physics and Mathematics.

1.4 **Master of Technology in Quality, Reliability and Operations Research** : *Duration* : 2 years; *Stipend* : Rs. 1000/-; *Contingency grant* : Rs. 1500/-; *Eligibility* : Master's degree in Statistics with knowledge of SQC and OR or Bachelor's degree in Engineering/Technology or equivalent qualification and knowledge of relevant topics of Physics, Chemistry and Mathematics.

2. **Junior Research Fellowships** : *Fellowship* : Rs. 1800/-; *Contingency grant* : Rs. 2500/-+HRA. The Institute conducts research in many areas of **Mathematics, Statistics and Economics** and offers fellowships for Research Courses in these subjects leading to registration for Ph.D. degree of the Institute. Details are available in the prospectus. The Institute also offers fellowships in other research areas. Eligibility conditions for the followships are given below :

2.1 **Research Courses leading to Registration for the Ph.D. degree** : *Eligibility* : (i) A good academic record with M.A./M.Sc. degree in Mathematics, Statistics, Economics or Econometrics or (ii) outstanding mathematical maturity with B.A./B.Sc. degree with Mathematics or Statistics or Economics as the main subject.

A candidate possessing a Master's degree in Sociology with Mathematics/Statistics and Economics at least at B.A./BSc. (Pass) degree level may be considered for admission to research programmes in the area of Economics.

2,2 **Fellowships in other research areas :**

Computer Science : *Eligibility* : (i) A good academic record with M.Sc./equivalent degree in Physics/Mathematics/Statistics or (ii) B.E./equivalent degree or M.E. / equivalent degree in Electronics / Computer Science / Electrical Engineering.

Fluid Mechanics : *Eligibility* : (i) A good academic record with M.Sc./equivalent degree in Physics/Mathematics/Statistics or (ii) B.E./equivalent degree in Mechanical Engineering.

Theoretical Physics : *Eligibility* : A good academic record with M.Sc./equivalent degree in Physics/Mathematics/Statistics preferably with Physics or Mathematics at the graduate level.

Agricultural Science : *Eligibility* : A good academic record with M.Sc. (Agriculture)/equivalent degree in Agronomy.

Zoology/Botany : *Eligibility* : A good academic record with M.Sc./equivalent degree in Zoology/Botany. At least one year laboratory experience in biological and biochemical analysis of pheromones is preferred.

Demography : *Eligibility* : A good academic record with M.Sc./equivalent degree in Demography / Statistics / Economics / Sociology with Mathematics/Statistics at the graduate level.

Anthropology : Bio-cultural Anthropology. *Eligibility* : A good M.Sc./equivalent degree in Anthropology with specialisation in Physical/Cultural Anthropology.

2.3 **Specialist Development Programme in SQC and OR** : *Duration* : 2 years: *Fellowship* : Rs. 1800/-+HRA; *Contingency grant* : Rs. 2500/-; *Eligibility* : (i) A good M.Sc./equivalent degree in a relevant subject or a good B.E./equivalent degree *and* (ii) Diploma in SQC & OR of ISI or at least one year's post-graduate training in SQC & OR in industry with adequate applied work evidenced from certified project reports.

3. **Certificate/Diploma Course on Operation and Programming of Automatic Data Processing Equipment** : *Duration* : 1 year for Certificate and additional 1 year for Diploma if one attains a specified standard in the Certificate Course. *Tuition Fee* : Rs. 200/- per year, no stipend. *Eligibility* : (i) Age below 25 years on 1.4.89, (ii) Bachelor's degree or equivalent with Mathematics as a subject at higher secondary (10+2) level and (iii) acquired typing speed of 25 words per minute.

All courses/fellowships are offered in Calcutta. In addition, courses **1.2** and **2.1** are offered in both Delhi and Bangalore. For courses **1.3** and **1.4**, ISI written tests and interviews are compulsory even for candidates with valid GATE scores. Programme **2.3** may be offered in any SQC & OR Unit in the country.

Hostel facilities are available. Selection tests for the courses/fellowships will be conducted at a number of centres. Candidates who have completed or are due to complete the qualifying examinations before **1 July, 1989** may also apply. This date may be relaxed by the Institute in case of candidates with outstanding academic record and performance in the selection tests and interviews. Candidates should satisfy themselves that they are eligible for admission to the course or for the award of the fellowship for which they apply. If at any stage it is found that a candidate does not satisfy the eligibility conditions or the information furnished in the application is incorrect, the application will be cancelled Prospectus and application form can be obtained from the **Dean of Studies, Indian Statistical Institute, 203 Barrackpore Trunk Road, Calcutta 700 035**, by paying an amount of Rs. 20/- by cash (between 11.00 a.m. and 2.00 p.m. on working days from Monday to Friday) or by crossed postal order/bank draft payable at Calcutta in favour of **"Indian Statistical Institute"**. Postal orders must contain the name and address (in block letters) of the sender. Money orders and cheques will not be accepted.

Last Date for receiving requests for application forms	:	**6 March 1989**
Last Date for receiving completed application forms	:	**27 March 1989**
Date of Selection Tests	:	**SUNDAY, 14 May 1989**
Tentative dates of interviews	:	**26 June—7 July 1989**

CLASSIFIED ADVERTISEMENTS

KUMAUN UNIVERSITY, NAINITAL

Advertisement No. Affi/1839 **Dated : 25.1.1989**

Applications for the following posts are invited by **25 March, 1989** on prescribed form obtainable from the office of the Registrar, Kumaun University, Nainital-263 001 (UP) by sending a self addressed 9"×6" envelope and crossed Postal Order/Bank Draft for Rs. 15/- payable to Finance Officer, Kumaun University, Nainital. Money orders are not acceptable. Candidates who have already applied in response to **Advertisement** No. 350, Dt. 13 12.85, 1736 Dt. 26.2 86 & 302 Dt. 30.5 87 for the posts of Principals and Advertisement No. 1156 Dt. 29.9 88 for the post Lecturer Chemistry (Lv), Advertisement No. 1736 Dt. 26.2.86 for the post Lecturer Law (Lv), Advertisement No. 1156 Dt. 29.9 88 for Reader Sanskrit, Advt. No. 773 Dt. 4.8.86 No. 302, Dt. 30.5.87 for the post Reader Geography need not apply again. They may however send the latest addition to their qualifications, changes of address etc. if any.

Sl. No.	Name of Deptt.	Name of posts				
		Principal 4500-7300	Professor 4500-7300	Reader 3700-5700	Lecturer 2200-4000	Specialization
1.	For Constituent Colleges	2TLR	—	—	—	—
2.	English	—	1TLR	—	—	—
3.	Sanskrit			1TLR	—	—
4.	Botany	—	—	1TLR	—	—
5.	Chemistry	—	—	—	1TLR 1Lv	Inorganic
6.	Law	—	—	—	1TLR 1Lv	—
7.	Hindi	—	—	—	1TLR	—
8.	Geography	—	—	1TLR	—	—

TLR implies—temporary but likely to be regular, Lv implies—leave vacancy

Qualifications

I. **For the Post of Principals**

(a) Consistently good academic record (that is to say the overall record of all assessments throughout the academic career of a candidate) with first or high second class (that is to say with an aggregate of more than 54 per cent marks) Master's degree or an equivalent degree of a foreign university in one of the subject taught in the college, and

(b) a doctorate degree in one of subjects taught in the College, with 7 years experience of teaching post-graduate classes or 5 years experience of Principalship of a degree college.

Provided that if a candidate possesses 10 years experience of teaching post graduate classes or 20 years or more experience of teaching degree classes or seven years experience of Principalship of a degree college or if he is or has been confirmed Principal of 5 years or more standing of any post-graduate college, the Selection Committee may relax the requirement of doctorate degree.

Provided further that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of a very high standard it may relax any of the qualifications prescribed in sub-clause (a).

2. For the Post of Professor

Either—Eminent scholarship with published work of high quality and active engagement in research and ten years experience of teaching or research and experience of guiding research at Doctorate level;

OR

Outstanding scholarship with established reputation for significant contribution to knowledge.

3. For the Posts of Readers

(i) Good academic record with a doctorate degree or equivalent published work and active engagement in research or innovation in teaching methods or production of teaching materials; and

(ii) Five years experience of teaching or research including at least three years as Lecturer or in equivalent position;

4. For the Post of Lecturers Chemistry & Hindi

(a) a doctorate degree or research work of an equally high standard in relevant subject, and

(b) consistently good academic record with first or high second class master's degree or an equivalent degree of a foreign university in relevant subject.

5. For the Post of Lecturer Law

Degree of Master of Laws with consistently good academic record.

Further details regarding qualifications, service terms and permissible relaxations in qualifications will be provided with application form. Preference will be given to SC/ST and disabled candidates if otherwise considered suitable by the Selection Committee. Application form will not be sent by post after 20.3.89. Application received after due date and on plain paper are not acceptable.

R.C. Pant
REGISTRAR

OFFICE OF THE REGISTRAR
KAKATIYA UNIVERSITY
WARANGAL

No. 100/A2/KU/89 **Dated : 18-1-1989**

Advertisement No. 1/89

Applications are invited in the prescribed form for the following posts in the Kakatiya University Service so as to reach the undersigned on or before 6-3-1989.

		No. of Posts		
Sl. No.	Department	Professor	Reader	Lecturer
1.	Geology	1	1	2
2.	Law	1	1	2
3.	Political Science	1	—	1
4.	History	—	—	1
5.	Physics	—	—	1 (For theoretical particle Physics)
6.	Asst. Librarian	1 Post (in Lecturer grade)		

15%, 7.5% and 25% of the vacancies of Lecturers & Readers (except the posts of Professor) are reserved for the candidates belonging to SC, ST & BC respectively as per the roster in accordance with G.O.Ms. No. 995 Dt. 16-12-1982.

The number of posts reserved for various categories is as under :

Category		Total	OC	SC	ST	Backward Class A	B	C	D
*Group-I	Readers	1	—	1	—	—	—	—	—
	Lecturers	4	1	1	2	—	—	—	—
**Group-II	Readers	1	—	1	—	—	—	—	—
	Lecturers	3	—	2	1	—	—	—	—
Asstt. Librarian		1	1	—	—	—	—	—	—

The above mentioned posts have been sanctioned by the UGC under VII Plan and are subject to concurrence of the State Government.

*Arts, Commerce, Business Management, Law, Social Sciences and Education including all languages.

**Sciences.

Prescribed application forms can be obtained from the office of Incharge, Publication Cell, Registrar's Office, Kakatiya University, Vidyaranyapuri, Warangal-506 009 in person or by post, sending a self addressed envelope affixing Rs. 2/- (Two only) postage stamps on payment of Rs. 20/- either by a Challan payable at the State Bank of Hyderabad, Kakatiya University Branch or by sending a Crossed Demand Draft in favour of the Registrar, Kakatiya University, Warangal. Postal Orders will not be accepted. The University reserves the right to fill or not to fill all or any of the posts.

Details of qualifications, specific specialisation and experience prescribed in respect of the above posts (including the particulars and precise branch of specialisation which is needed and also the preferential qualifications considered desirable) will be furnished alongwith the application form.

Dr. P. Venkat Reddy
I/c REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

POWAI, BOMBAY-400 076

Advertisement No. C-264/89

Applications are invited from citizens of India for the following posts at this Institute, in the prescribed form obtainable free of charge from the Registrar, Indian Institute of Technology, Powai, Bombay-400 076, on request accompanied by a self-addressed envelope (25 cm × 10 cm). Persons employed in Government / Semi-Government Organizations or Educational Institutions should apply through proper channel. Indian candidates abroad may apply on plain paper in dublicate. The applicant should give an account of their academic and professional record, a list of research publications in reputed journals, patents etc. and names of three referees. The posts carry allowances such as D.A., C.C.A., H.R.A. as per rules of the Institute which at present correspond to those admissible to the Central Government employees stationed at Bombay. Depending on qualifications and experience, a higher salary may be offered. If decided by the Selection Committee, candidates for the post of Assistant Professor may be considered for that of Lecturer. Completed applications should reach the Registrar, IIT, Powai, Bombay-400 076 on or before **28th February, 1989.**

Some posts of Lecturer are reserved for candidates belonging to the SC/ST communities.

IIT Bombay has twelve academic Departments—seven in Engineering disciplines, four in Sciences and one in Humanities & Social Sciences. In addition, there are two Centres—Industrial Design Cenrre and Centre for Environmental Science and Engineering — which also offer degree programmes. All the Departments / Centres have well equipped research laboratories. The Institute also offers programmes in a number of interdisciplinary areas.

The Institute has an extensive Library, a Central Workshop, Cyber 840 main frame Computer and a number of mini and micro computing facilities. Excellent facilities exist for experimental research through Centres such as Advanced Centre for Research in Electronics, Centre of Studies in Resources Engineering, Regional Sophisticated Instrumentation Centre, Computer Aided Design Centre, etc.

Assistant Professor : Scale of Pay : Rs. 1200-50-1300-60-1900.

Lecturer : Scale of Pay : Rs. 700-40-1100-50-1600.

Total emoluments on the minimum of the scale

On basic pay of Rs. 1200/- : Rs. 3593/-
On basic pay of Rs. 700/- : Rs. 2430/-
Excluding HRA

(The above scales are likely to be revised shortly)

Qualifications & Experience

I. Assistant Professor

Consistently good academic record with a Doctorate in the relevant field. About five years experience in teaching and/or research and development.

Candidates not possessing a Ph.D. may also be considered if they have to their credit equivalent published research work of design/development work of high standard either in an Institution or in an industry.

II. Lecturer

A Doctorate in Science or a Master's degree in an appropriate field in Engineering/Technology/Management/Arts with a very good academic record and a first class at Bachelor's degree and/or Master's degree level.

Minimum one year or relevant experience in teaching/research/industry.

Areas of Specializations

(1) Department of Aeronautical Engineering
(Post : Assistant Professor)

- (i) **Aerodynamics :** Supersonic and Hypersonic Aerodynamics & Flight Mechanics.
- (ii) **Aircraft Design :** Preliminary Layout and / or component & detail Design of Aircraft Structures.
- (iii) **Aircraft Propulsion :** Aerospace Fuels, Combustion and Combustor Design, Rocket Propulsion.
- (iv) **Control & Guidance :** Avionics, Aircraft Instrumentation, Aerospace Vehicle Dynamics & Control.
- (v) **Aircraft Structures :** Computational Structural Mechanics, Fatigue and Fracture, Experimental Stress Analysis, Composites, Structural Dynamics.

(2) Department of Chemical Engineering
(Posts : Assistant Professor/Lecturer)

- (i) Automation & Process Control.
- (ii) Electrochemical Technology.
- (iii) Coal, Coal Chemicals, Gassification.
- (iv) Heat Transfer.
- (v) Mass Transfer.
- (vi) Petroleum Refining and Petrochemicals.
- (vii) Process Equipment Design—Vessel Design.

A basic degree in Chemical Engineering is required. A post-graduate degree in appropriate area of specialization is desirable.

(3) Department of Civil Engineering
(Post : Assistant Professor)

- (i) Transportation Systems Engineering.
- (ii) Geotechnical Engineering/Soil Dynamics / Mechanics Foundations.
- (iii) Earthquake Engineering/Structural Dynamics / Shell Structures.
- (iv) Hydrology / Water Resources System.
- (v) Offshore Engineering.

(4) Department of Computer Science & Engineering
(Post : Assistant Professor)

- (i) Analog & Digital Circuits and Systems.
- (ii) Operating systems.
- (iii) Distributed Computing & Distributed Databases.
- (iv) Computer Communications.

(5) Department of Electrical Engineering

(Post : Assistant Professor)

(i) Microwave & Optical Communication.
(ii) Antennas & Radar Systems.
(iii) Digital Communications.
(iv) Automated Drives.
(v) Magnetic Levitation Systems.
(vi) Bio-Medical Instrumentation.
(vii) Data Acquisition & Processing.
(viii) VLSI Design & Technology.
(ix) Integrated Circuit Applications.
(x) Devices Physics.
(xi) Energy Systems Control.

(6) Department of Mechanical Engineering
(Posts : Assistant Professor/Lecturer)

(i) Production Engineering (Computer Aided Manufacturing; Computer Aided Design & Machine tool Engineering).
(ii) Thermal & Fluid Engineering (Cryogenic Engineering)
(iii) Instrumentation & Control.
(iv) Design Engineering (Robotics & Tribology).

A basic degree in Mechanical Engineering with post-graduate degree in appropriate area of specialization.

(7) Department of Earth Sciences
(Post : Assistant Professor)

(i) Geophysics (experience in Geophysical Prospecting & exploration for oil/ore deposit using mainly seismic & gravity methods).
(ii) Hydrogeology / Marine Geology/Environmental Geology/ Engineering Geology.

(8) Department of Metallurgical Engineering
(Post : Assistant Professor)

(i) Electronic/Magnetic Materials.
(ii) Polymers & Composites.
(iii) Advanced Ceramics.
(iv) Surface Characterization & Modification.
(v) Electron Microscopy.
(vi) Solidification/Metal casting
(vii) Modelling of deformation process.
(viii) Metal joining.

A basic degree in Metallurgical/ Materials Engineering and a Ph.D. in Materials Technology / Engineering/ Science with specialization in one of the above areas. Candidates with a M.Sc. degree in Physics instead of B. Tech. degree in Metallurgical/Materials Engineering may be considered.

(9) Department of Chemistry
(Posts : Assistant Professor / Lecturer)

(i) Solution Chemistry.
(ii) Experimental Spectroscopy.
(iii) Physical Chemistry of Polymers.
(iv) Physical Organic Chemistry/ Synthetic Organic Chemistry.
(v) Chemical Instrumentation.
(vi) Biophysics,
(vii) Physical Inorganic Chemistry/ Synthetic Inorganic Chemistry.

Candidate should submit a plan of future research work.

(10) Department of Humanities & Social Sciences

(Post : Assistant Professor)

(i) **Psychology :**
Organizational Behaviour/ Social Psychology.
(ii) **Philosophy :**
Philosophy of Science, Logic, Epistemology, Ethics, Existentialism.
(iii) **Economics :**
Micro-economics, Macro-economics, Regional Planning.
(iv) **English :**
English language teaching (ELT).

(11) Department of Mathematics
(Posts : Assistant Professor/Lecturer

(i) Statistics
(ii) Operations Research
(iii) Differential Equations
*(iv) Computer Science
(v) Algebra

*For Lecturer's position minimum qualification in Computer Science is B.Tech. / M.Sc. (Mathematics) and M.Tech. (Computer Science, 1st class).

(12) Department of Physics
(Posts : Assistant Professor / Lecturer)

(i) Semiconductor Physics Devices.
(ii) Lasers, Spectroscopy
(iii) Atomic-Nuclear-Physics
(iv) Solid State Physics
(v) X-rays
(vi) Theoretical Physics

(13) Centre for Environmental Science & Engineering
(Posts : Assistant Professor/ Lecturer)

(i) Environmental Monitoring & Assessment
(ii) Air Pollution Control
(iii) Air/Water Quality Modelling

A basic degree in Engineering followed by post-graduate degree in Environmental Science and Engineering or Ph.D. in Applied Science is required.

(14) Interdisciplinary Programme
(I) Energy Systems Engineering
(Posts : Assistant Professor/ Lecturer)

Basic degree in Electrical Engineering with post-graduate degree in Energy Systems Engineering with emphasis on Electrical Drives/Instrumentation and Control / Power Electronics / Energy Audit / Energy Conservation / Photovoltaic Applications.

(II) Biomedical Engineering
(Posts : Assistant Professor/ Lecturer)

Qualifications & Experience

M.D./M.S. in Medical Sciences or Ph.D./M.D. in other disciplines like Biochemistry, Biophysics, Biomedical Instrumentation, Computers in Medical Sciences or Aids for handicapped. The candidates should have aptitude for research and some publications in areas related to Biomedical Engineering.

For Assistant Professor's position, atleast 5 years experience in teaching and research with good relevant publications is required.

Areas of Specialisation :

(i) Medical Sciences / Pharmacology/Orthopaedics Pathology;
(ii) Biomedical Instrumentation/ Computers in Medical Sciences/ Aids for handicapped.

REGISTRAR

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University News

MONDAY, FEBRUARY 13, 1989 Rs. 2.50

L to R—Prof. M.G.K. Menon, Chief Guest, Dr. H.N. Sethna, Chairman, IIT Delhi, Prof. N.M. Swani, Director, IIT Delhi at the Convocation of the Institute.

Central Institute of English and Foreign Languages

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K. Jayashankar
REGISTRAR

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Editor :
SUTINDER SINGH

ARY & DOCUMENTATION

National Goals and Higher Education

D. A. Ghanchi*

Prologue

A nation in the modern world is known for the principles, values and ideals its members keep before them in their everyday life and work and in all their moments of successes and failures. It is the degree of identification with and dedication to these goals that would determine the real worth of each member of the nation, and the strength, vitality and credibility of the nation as a whole in the context of the world comity.

With the peculiar geopolitics of the world of today, with its frontiers shrinking every day, each member of the global family has to perform two conflicting roles, namely, to preserve his basic, intrinsic identity, and, secondly, at the same time, to continually interact with fellow-members in order to build up a cooperative and harmonious world family. This, of course, does not imply a dishonest "double speak" which would be symptomatic of political and moral schizophrenia, but a positive and healthy integrative attitude to life and its problems which alone would promote the ideal of individual freedom in the global context, the cherished dream of all seers of the world.

Indian Vision

As a nation, the people of India have given to themselves a constitution through which their vision of the future has been articulated. It is a scheme of fivefold goals beckoning one and all to strive for their realisation. They are :

(1) A democratic polity guaranteeing freedom, justice and equality to all its citizens regardless of their creed, caste, sex, language, residence, status and beliefs.

(2) A just social order ensuring a life of self-respect, self-worth and self-esteem to everyone, particularly the lowliest of the low, including the disadvantaged sections of population like the scheduled tribes, the scheduled castes, the socially and economically weaker sections, particularly backward minorities, women and deprived sections of rural areas as well as urban slums.

(3) A thriving economy ensuring rapid, balanced and wholesome development of national resources on one hand and distributive justice on the other, with a view to maximising the per capita productivity of the citizens so that everyone of them participates gainfully and on equal terms in the process of national development and gets his due reward to enjoy a decent standard of living comprising optimum provision of food, clothing, housing, education, medical care and recreation not only during his/her working career but also during periods of forced unemployment, retirement and distress.

(4) A healthful environment, natural, physical, and social, free from ecological inbalances caused by pollution and degradation of

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nature through multiple factors like industrialisation, urbanisation, deforestation, over-exploitation of resources, etc. which have been supported by political corruption, administrative negligence and brazen greed to feather one's nest at any cost.

(5) A rich, diverse and vibrant cultural and moral ethos that would synthesise the ancient with the modern in the fields of arts, crafts, sciences, literature, beliefs and values, and lead to the flowering of the best the Indian psyche has inherited from times immemorial and has strengthened through its encounter with modern thought, science and technology, and thereby realize the dream of a renascent India for which *Tagore* prayed thus :

> *Where the mind is without fear and the head is held high,*
> *Where knowledge is free,*
> *Where the world has not been broken up into fragments by narrow domestic walls,*
> *Where words come out from the depth of truth,*
> *Where tireless striving stretches its arms towards perfection,*
> *Where the clear stream of reason has not lost its way into the dreary desert of dead habits,*
> *Where the mind is led forward by thee into everwidening thought and action;*
> *Into that heaven of freedom, my Father,*
> *Let my country awake.*

The Nation in Action

In order that these national goals are realised, appropriate strategies require to be adopted. Immediately after independence primarily through the following processes, the Indian nation has been in action to realise the vision of "the heaven of freedom."

(1) *The Political Process*

This involves political parties, mobilisation of people through party programmes, formation of lobbies and pressure groups and thereby participation in and benefits from the decision-making process. It is unfortunate to witness a gradual, but definite erosion of standards of political ethics and public morality over the years and a systematic evolution of a culture of corruption and crime infecting the body politics of the country.

(2) *The Legislative Process*

Ever since India became independent, there has been a plethora of legislations passed by State legislatures as well as parliament many of which have been directed towards developmental goals of the country. Several amendments to the constitution, the Acts abolishing zamindari and privy purses, or nationalising life insurance and commercial banks or the latest Parliament Act illegalising the glorification of Sati are but a few of the numerous legislative measures that have paved the way for the socio-economic transformation of the country. At the same time, there have not been a few instances of disrupting the legislative apparatus. both in the house and outside which, if not controlled, may subvert this vital estate of our democratic structure.

(3) *The Executive Process*

The administrative set up of the country from the village level to the level of the federal government was bequeathed by the British. Over the years it has been made to pass through a transformative process so as to change its original command-and-control orientation to the new serve-and-shape attitude towards the people. A substantial dent has been made no doubt, in the colonialistic bureaucratic disposition of the system, but a lot more remains to be done to make the apparatus more serviceable, more accountable and more effective in the years to come.

(4) *The Judicial Process*

One of the few national assets of which free India is legitimately proud is its judicial system whose several historic judgements since the inauguration of the Republic have proved landmarks in the march of the nation towards an egalitarian and progressive socio-politico-economic order. The philosophy of public interest litigation lately guiding the thinking of the bench and the bar, and the innovative Lok Adalats are noteworthy new dimensions of the judicial activism found in the post-second-world-war world. However, the system does suffer from avoidable shortcomings like inordinate delays in the administration of justice and the deterioration in the quality of personnel, both on the bench and in the bar that are a cause of concern for all.

(5) *The Public Opinion Building Process*

Here comes the role of the mass media, particularly of the Indian Press. The role the press played during the freedom movement and has been playing since independence is a saga of continuing informal education of millions of people in the country. Movies, radio and T.V. has imparted a thrilling audio-visual dimension to the process. One must, however, take a note of attempts of indoctrination, mal-information and disinformation through vested interests, political as well as denominational. These have very often hamstrung the process of healthy development of the country, and therefore. will have to be guarded against.

This five-fold process has unquestionably put the country on the move since it became independent, and has, despite innumerable acts of omission and commission on the part of the participants in the process, led the country towards the realisation of its goals in a number of ways. The question is whether the input of education, particularly of higher education, could make a qualitative change in the operations of the five-fold process, and if yes, how best it can be done.

The Process of Education

The process of education is an overarching activity enveloping the whole gamut of various processes that operate to implement the agenda for development in a community. The operational quality of the various processes indispensably depends upon the intellectual, technological and moral equipment of all those who take part in them, be they planners, organisers, administrators, leaders, evaluators and even ordinary manual workers. Whatever strengths and weaknesses we find in all this human-ware, are inevitably related to their education, be it formal, nonformal or informal. The experience of developmental sociologists and economists is that education is a crucial force that is significantly related to a person's role effectiveness, level of motivation and rate of success.

Higher education, in particular, is an instrument for development and change because it is assigned with the important formative task of preparing leaders for different walks of life—intellectual, social, political, cultural, scientific and technological. It is assumed that higher education is availed of by those young men and women who have an above average cognitive ability, an excellent communication skill, a highly sensitive social conscience and expertise to organise, to lead and to implement decisions, an extraordinary sense of dedication to goals of life, a sharp moral sensitivity to problems and concerns of the community and a foresight into the seemingly unpredictable scheme of things to take shape in the near future.

To shape the lives of such young men and women of the nation, there are available well organised educational campuses bristling with drive and dynamism infused by an intellectually energetic, morally and spiritually sensitive and professionally motivated faculty engaged in a ceaseless pursuit of knowledge always ready to renew themselves through research and experimentation, and thereby contribute to dissemination and growth of knowledge.

India has a tremendous resource of higher education in over 180 universities and university level institutions, 5500 colleges and 2,50,000 faculty catering to the educational needs of 3.6 million students. The field of higher education is a virtual nursery of leadership that can provide new meaning to the five processes described earlier. These five departments direly need specifically trained manpower with a sense of mission and commitment. We have had for too-long an adhoc approach to our needs of appropriate human resource to lead our political parties, to man our legislatures, executive and judiciary, to provide us with captains of business, industry and services, and to give us visionaries in the fields of philosophy, arts sciences, humanities, aesthetics, and all those walks of life that make it worth living. The nation expects higher education to produce that human capital which the poet *Josiah Gilbert Holland* (1819-91) beseeched God to bless a nation within his immortal poem '*Give us, O God* !' This he prayed for :

God !
Merciful God !
Because a dark deepening crisis
Is engulfing this beloved land of ours,
Give us men a time like this demands;
Honest men,
Men of strong minds,
Of big hearts, true faith and ready hands
Men whom lust for power will not corrupt,
Men whom the spoils of office will not buy,
Men who possess opinions and a will,
Men for whom service to the nation will come
before their selves,
Men who will not lie,
Men who will not indulge in gimmickry
Men who will not feed us on slogans or stunts.
Give us, O God !
Men of honour,
Of integrity,
Men who can and will
Stand up to demons of demagogy;
Men who will not yield to treacherous flatterers,
Tall men, sun crowned,
Men who will live above the fog and
fluff of mock adulation
In public duty and private thinking,
God ! give us such men
As a trying and testing time like this demands.

If this be the crying need of the hour, it is high time the 'God' residing in the shrines of higher education responded to it and sent forth young men and women to meet the challenges of the 'trying and testing time' the nation is passing through.

Seven Steps to Transformation

In this critical developmental context of India, higher education assumes crucial importance in our total national endeavour for development and change. The system of higher education that has been handed down to us by an irrelevant age needs to be transformed in keeping with the changing socio-economic context and the world view of contemporary India.

We can visualize seven steps for such transformation.

1. Redefinition of the goals
2. Restructuring of the system
3. Redesigning of the programmes
4. Realignment of the strategies
5. Renewal of the teacher
6. Rededication of the student
7. Reassertion of the community stake

It would require a massive intellectual and moral effort on our part to take these bold seven steps to transform the system, for each step involves a considerable mix of elimination of the irrelevant, renovation of the old but useful, and a firm induction of the new that is being added to the fund of knowledge through research and development.

Let's have a hurried overview of the span of each step.

1. *Redefinition of goals*

This would involve putting the system of higher education in perspective by asking ourselves the question 'Why this higher education ?' We will have to clearly lay down the targets of our educational enterprise in terms of the country, the people of all hues and shades, and individuals supposed to pursue higher education.

2. *Restructuring of the system*

We must reexamine the nature and utility of numerous structures and substructures found in the present system of our higher education and reset them in the context of our redefined goals. We have several models to choose from : the unitary university, the autonomous college, the three-year undergraduate system, the term versus semester system, and so on. Which structure shall suit our national genius ? Let's seek the alternative answers.

3. *Redesigning of the programme*

For too long have the courses of higher education in Indian Universities been criticised as archaic, static and irrelevant to contemporary as well as emerging needs. The programmes pursued in our colleges and universities have been labelled as narrow, lop-sided and timid. It is high time they were redesigned by subjecting them to a thorough shake-up rather than to a mere cosmetic face lift.

4. *Realignment of strategies*

Our higher education has thrived on a limited repertoire of techniques and devices that smack of the colonial past. Take any domain : teaching, testing, supervising, administering and so on; we make do with worn out strategies and incongruent work styles. The result is a maximum wastage with a minimum gain whether on the part of the student in the form of his deficient learning or on the part of the teacher in the form of his lowest level of job satisfaction. A comprehensive spectrum of alternative methods, technologies, materials and resources needs to be evolved, if need be, by organising a national technology mission to do so.

5. *Renewal of the teacher*

The king pin of any move for educational reform is, inescapably, the teacher, for he is the prime mover in the entire process of education. The teacher is not a mere wage earner, certainly not a custom tailor, and never, never just one of the hired labourers, for to teach is to love, to be creative and to be an architect of dreams. We need to rehabilitate the teacher to this philosophical role, and liberalise him from the present rut of teaching to test to which he has been conditioned by a commercialized system. For this we wish he renewed himself at the earliest.

6. *Rededication of the student*

The Indian higher education scene is over-crowded with non-students who do not know why they are where they are. This continually results in an alarming rate of wastage and stagnation. Unrestricted admissions, unguided selection of courses by the students, their ill-equipped mental make-up and the unchallenging instruction they are subjected to are but a few serious shortcomings that give rise to an unmotivated, and undedicated student population teeming in our colleges and universities. Let's reinstil in them a sense of dedication, a spirit of adventure, and a yearning for learning to enable them to experience the thrill of self-actualization through their full-fledged involvement in higher education.

7. *Reassertion of community stake*

Higher education in modern India has traditionally had its abode in the ivory tower, conceptually as well as operationally. This has to be changed at the earliest. Education must receive nourishment through its roots in the community soil which, in turn, it should refertilise through the same channels. The system must be answerable to the community in respect of its investments, its programmes and its performance. Let the community reassert its stake in this huge enterprise, and thereby help evolve a communitarian approach to education which alone can strengthen its foundations and make its operations socially meaningful and benign in their ultimate impact.

Conclusion

The Indian nation has charted for itself a deliberate course of action by adopting a progressive constitution with the hope that the assurance it has given of freedom, equality, justice and well-being of everyone of its citizens is realised in actually sooner than the founding fathers of the republic might have envisioned. Education, particularly higher education, has been accorded a critical place in the scheme of national priorities to accelerate the process of the realisation of national goals. The seven-step strategy recommended here is but an assay in optimism on behalf of the common man of India. Will the Votaries of our higher education sustain that common man's last ray of hope ?

□

Computerizing Large Systems : Lessons from an Application

Abhimanyu Singh*

The experience of computerizing examination results in the University of Rajasthan shows that an ad hoc approach to computerization of large data systems can be hazardous.

The situation involved the use of hired computers on a contract basis for accomplishing a time-bound task. A number of government and semi-government bodies in India are adopting this strategy to gain access to computers. This initial period, prior to developing own capabilities, is viewed by organizations as a time to survey the market, gain familiarity with computers, select the performance areas and tasks for computerization, train and recruit computer personnel and introduce changes required for conversion from a manual to a computerized system.

This period became a nightmare for the University of Rajasthan. The application of computers for tabulating the 1982 examination results brought the University close to the loss of a whole year for over 3,00,000 students, instead of speeding up the announcement of results. I give here an account of how this happened, contrast the 1982 experience with the University's successful experience subsequently, and draw some lessons from the computerization of large systems.

University of Rajasthan

Up to 1987, the University of Rajasthan was a teaching-cum-affiliating university with responsibility for conducting examinations every year for over 3,00,000 students spread across 200-odd colleges. In 1982, when the computerization of examination results was introduced, the university was conducting 300 examinations annually for which 2,500 question papers were set and 5,00,000 answer-books assessed by about 15,000 examiners. The administration's task' was enormous.

Examination Process

The examination process virtually commences with admissions in July every year and proceeds step by step in around 60 different stages until the declaration of results a year later. These stages are so intricately linked with each other that any delay in completion of one stage results in dislocation of the entire process.

Background

By 1982, the University's reputation for conducting annual examinations on schedule and declaring results before the commencement of the next academic session in July had received a serious setback. Established in 1947, the University had grown over the years in terms of number of colleges affiliated, number of students enrolled, number of students examined, and the number of examinations conducted. This phenomenal growth was accompanied by a proliferation in the types of faculties, departments, subjects offered and combinations permitted. Under student pressure the University had permitted the carrying over of 'backlog' papers to higher classes and re-examination in the case of papers 'boycotted' by students. This had grown into administratively unmanageable proportions. Student unions had also made it a practice to demand and obtain postponements of annual examinations on one pretext or another.

Student indiscipline, employees' agitations, non-cooperation by teachers and administrative mismanagement had made the situation worse. The staff of the Examination Branch, which was responsible for the smooth and successful conduct of annual and supplementary examinations and for timely and accurate declaration of results, would hold the University administration to ransom at will. They would demand exorbitant overtime payments for checking of application forms, issue of permission letters and admission cards, proof-reading of roll-lists, and preparation of tabulation registers and mark-sheets. If their demands were not met they would adopt deliberate 'go-slow' tactics or strike work at critical stages.

The University administration had been too soft and accommodating to trade union pressures from students and employees. It was also guilty of not being able to exercise close and effective supervision, monitoring and control over the numerous stages of the examination process. There was little coordination between the University authorities and the affiliated colleges and between different sections of the Examination Branch. Due to absence of advance planning and lack of indepth understanding of the entire examination process, there was a tendency to go in for last minute ad hoc solutions as and when problems arose. The general laxity in managing the University had allowed the teaching community to get away with violation of deadlines for examination work. This led to delays in :

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* *Deputy Secretary, Ministry of Human Resource Development.*

- * approval of panels of examiners
- * paper-setting
- * assessment of answer-books
- * despach of award-sheets
- * receipt of answer-books
- * tabulation of results.

Due to the absence of effective monitoring and control, the printing presses also took their own time to print roll-lists, numerical rolls, question papers, tabulation registers and mark-sheets.

Past experience had shown that introduction of reforms in the examination system of the university was a difficult and complex job. The track record of unsuccessful reforms and the lessons learnt from them ought to have been borne in mind before embarking on a major reform such as computerization of the entire examination process.

New Leadership

The academic session of 1981-82 saw a change in the leadership of the University. The new Vice-Chancellor and the new Registrar were faced with a formidable challenge which they were willing and eager to meet. The University reopened two months behind schedule on September 15, 1981 and results of the 1981 annual examinations were declared as late as October of that year. This led to delay in admissions and enrolment. Due to lack of planning and malfunctioning of the University Press, printed application forms for appearing in 1982 examinations were not supplied to students in time and the dates for submission of the forms had to be deferred up to December 1981. Supplementary examinations and re-examinations of boycotted papers were also held way behind schedule. This made the conduct of examinations on schedule from March to May 1982 extremely difficult. The University administration was under great pressure from the community and the Government of Rajasthan to do something drastic to remedy the situation.

Decision to Computerize

It was in these circumstances that the decision to go in for computerization of the examination process was taken. It was a response to a rather desperate situation and a resolve on the part of the Vice-Chancellor and the Registrar to set matters right. In taking this important decision, they were influenced by the successful use of computers by certain universities and school boards for processing examination results, high pressure salesmanship by some computer firms, and a widespread belief that computers were the ultimate solution for administrative tasks requiring sorting, processing and analysis of voluminous data in a time-bound sequence.

Policy Process

Computerization of examination work had been successfully initiated in the Universities of Meerut and Delhi. The former Vice-Chancellor of Delhi University had returned to the University of Rajasthan as Professor Emeritus and was a close confidante and adviser of the Vice-Chancellor. He was of the view that computerization had brought about considerable efficiency in the examination system in the University of Delhi. It was he who inspired the Vice-Chancellor to think in terms of computerization of tabulation of results and other related work. At his instance, some officers of the Examination Branch were put in touch with their counterparts in Delhi University and the Controller of Examinations was asked to explore the possibilities of computerization.

Computerization

In December, 1981, officers of the Conduct Section of the Examination Branch submitted a note to the Registrar that due to non-availability of printed application forms, the colleges had not been able to submit application forms on time. If examinations had to commence on schedule in March 1982, the Conduct Section would require the services of 65 additional employees or make heavy over time payments to the existing staff. When this note was discussed by the Registrar in a meeting of the officers of the Examination Branch, some of them suggested that the only way to clear the arrears of work and hold examinations in time was to computerize some aspects of examination work. The Registrar held meetings with selected officers of the Examination Branch to discuss issues relating to computerization. He also held meetings with representatives of two computer firms who had been approaching the University persistently and were known to some officers.

In the middle of February 1982, the Registrar and a couple of officers visited some computer firms in New Delhi. On their return, they engaged in negotiations with the principals of the two computer firms regarding work, cost, programming, volume of work, etc. On February 26, 1982, the Registrar submitted a three-page note to the Vice-Chancellor in which he mentioned that the cost of tabulation by computer would be less than the manual cost. He also said that mechanical tabulation would be quicker and cheaper as well as more efficient and neat. He requested the Vice-Chancellor to approve a proposal to allot undergraduate examination work to the specified firms on the terms, conditions and rates negotiated by him. The Vice-Chancellor approved the proposal on February 28, 1982 with the remarks that he had no doubt that computerization would be much better as the expeditious process of working the examination system which was in bad shape. He advised the Registrar and the Controller of Examinations to take every care while introducing the computerization process. Further negotiations with computer firms led to allotment of post-graduate examination work to two other firms, one of which was locally based.

The computer firms were assigned the task of preparing roll-lists, numerical returns, blank award lists, tabulation registers, list of successful and unsuccessful candidates, merit lists, mark-sheets, press release of results and statistical abstracts.

Naive Hopes Belied

The University authority naively believed that, with the introduction of computerization of examination work, most of their problems would be taken care of. The computers would enable them to clear the arrears of work, expedite the whole examination process and enable them to declare results accurately and on schedule.

Little did they realize that their hopes would be belied, the loss of an academic year become imminent and that the reputation of the University would touch rock-bottom level. The reasons for this become quite clear from the flaws in the policy process and the misconceptions harboured by the University authorities about computers.

Misconceptions

There is no doubt that the decision of the University authorities to go in for computerization was born out of a sincere and genuine desire to restore the academic calendar and uphold the reputation of the University. However, an analysis of the decision-making process reveals that the computerization decision was more a response to a desperate situation rather than a well-planned application. The timing coincided with a period when the administration of the University was in a state of disarray. Yet the expectations from the computer were so high and unrealistic that when 1982 examination results were declared months behind schedule and full of errors, the blame was conveniently put on the computer and not on the personnel involved. It was leftto two in-house committees and one external committee which made a detailed study of the 1982 examination fiasco to point out that it was the nature of the decision-making process and the internal malfunctioning of the University which were principally responsible for the disappointing outcome.

Flaws in Policy Process

Most of the functionaries involved in the decision were not sufficiently familiar with the functioning of computers. They had a vague understanding of the potential of computers but had virtually no exposure to them. In addition, the then Vice-Chancellor and Registrar were relatively new to their jobs, and were not fully aware of the nuts and bolts of the manual examination process. It appears that in their desire to improve the working of the system, they relied on the advice of subordinate officers and advisers who led them to believe that computerization was the only solution in the given circumstances. To make matters worse, the University authorities either did not deem it proper or did not have sufficient time at their disposal to utilize the services of a consultant or expert to advise them on the mechanics of computerization.

Prey to Salesmanship

The University authorities were also influenced to a considerable extent by the high-pressure salesmanship of a few computer firms, which convinced them that once the work was allotted to them the University officials would be relieved of day to day headaches in supervision and monitoring of examination work. The University did not countercheck the claims of these firms, examine their antecedents, past performance and experience and their physical capacity to perform the tasks assigned to them in the given time schedule. No tenders or quotations were invited before allotting the computerization work to two 'outside' firms. This was a violation of financial rules and prevented a number of competent firms from bidding for the contract at competitive rates. It turned out that the firms which obtained the contract did not enjoy a good professional reputation, had no previous experience of doing examination work, did not possess the physical capacity to undertake the job in the available time and charged the University more than the market rates.

When the decision to allot computerization work to a few selected firms on the basis of negotiations became the subject of adverse criticism in the Press, the University administration was compelled to invite some other firms for negotiations and this led to the allotment of post-graduate examination work to other firms at lower rates. The Finance Officer, who was left out of the entire process, later estimated that the

University was subjected to a loss of approximately Rs. 4,00,000 due to the confusion. The computer system of one of the firms was too small to handle the allotted work, and, without consulting the University authorities, the firm had subcontracted part of the work to another firm located in Bombay.

One of the major drawbacks in the decision-making process was that the main stakeholders, who play a critical role in the success or failure of any new policy or reform—representatives of teachers, employees and students—were not taken into confidence. The university's past record of unsuccessful examination reforms was, in large measure, a result of the non-cooperation and obstructionist tactics adopted by unions of teachers, employees and students. Due to their non-involvement, the unions did not understand the motives of the administration and viewed the changeover to computerization with mistrust, apprehension and resentment. When results were not forthcoming they became vociferous and virulent critics of computerization. The Registrar and the Controller of Examinations made no attempt to explain the rationale of their decision to the officers and staff involved in examination work. A number of them believed in the Union propaganda that it was basically an indirect strategy to deprive them of well-deserved over-time payments.

Teachers who were responsible for tabulation and checking of results also viewed computerization with similar apprehensions. In their role as head examiners and co-examiners, they were not briefed about the methodology for entering marks in the computerized award-sheets. Principals of affiliated and constituent colleges had a major responsibility in getting application forms filled in the new format designed to facilitate computerization and to ensure that these reached the university office before the prescribed date. They were responsible for receiving computerized roll-lists, numerical returns, tabulated results and marksheets for distribution to staff and students. They were required to explain discrepancies or errors to 'agitated' students. Yet they were not taken into confidence.

View of Computerization

The view of the computerization process in 1982 was that the computer would do whatever the manual system was doing—faster, neater and better. Few in the University administration could conceive that computers had their own limitations and that an enormous amount of discipline is built into the computerization process. The lesson that the quality of information fed into the computer has a vital bearing on its output was learnt the hard way. The computer could not be expected to make up for human errors and delays and still meet impossible deadlines arbitrarily imposed on it. Formats developed after due care and considerable labour could not be chopped and changed at will without allowing the computer personnel time for programming the necessary changes. The practice of feeding batches of data in several instalments did not aid the computerization process either. It was rather difficult for the University authorities to comprehend that computers did make mistakes and that these could be rectified only by laborious manual checking.

Computer's Inflexibilities

It was not also realized that a manual system can handle complex situations and exceptions along with routine whereas the handling of complex situations and exceptions on a computerized system required careful systems analysis and programming. Based on their long experience, the officers and staff of the University could make necessary adjustments to accommodate complexities/exceptions while working out results as a matter of routine. They presumed that having provided the basic inputs to the computer firms, their personnel would be able to programme the computers for catering to complex and exceptional cases. They did not appreciate that the changes made by the University in the examination schemes over the years made it extremely difficult for persons unfamiliar with the system to grasp these complexities quickly. The kind of complexities, beneath what appeared on the surface as a simple tabulation job, may be illustrated with these examples :

* the backlog scheme allowed LLB students to obtain their degrees in nine years instead of three, thereby a student could accumulate a number of backlog papers
* the University permitted each undergraduate student as many as six chances to clear compulsory papers. In fact, some students enrolled in post-graduate courses had not cleared their compulsory subjects.
* the scheme for improvement of performance permitted a post-graduate candidate to appear in 50 per cent of the papers offered by him in his final M.A. examination to enable him to improve his performance. The performance in these, papers was only counted if it was better than his previous performance.
* according to University rules, ex-students (those who had failed as regular students) were to be credited with marks obtained by them in the practical examination of the previous year, instead of repeating their practicals.

- grace marks were awarded to students who failed to pass their final examination by a very narrow margin.

The computer personnel were not in a position to programme these complexities. It became evident that computer programmers and analysts needed more assistance, guidance and cooperation than had been envisaged. This was not easy as the computer firms were situated at a considerable distance from the headquarters of the University, Consequently, a number of errors crept in which undermined the credibility of the entire process.

Ineffective Management

As stated earlier, the University administration was virtually in a shambles. This is best illustrated by the manner in which the work relating to despatch, receipt and checking of examination application forms was handled.

The date for receipt of application forms for appearing in 1982 examinations had been extended from October to December 1982 due to non-availability of printed forms. When the application forms were distributed to 200-odd affiliated colleges, they were accompanied by a specially designed format which was to be fed to the computer. Due to lack of supervision and guidance on the part of the college staff, several students did not fill in the application forms legibly or carefully. Consequently, the check list prepared by the computer on the basis of these forms had a large number of errors which took several days and considerable manual effort to correct. The colleges affiliated to the University were taking the liberty of sending application forms in several instalments long after the last date for submission; often without the prescribed fees. The submission of application forms in such a haphazard manner also upset the schedule for computerization.

The deadline for the staff of the Examination Branch for checking forms were not strictly enforced. The computer firms expected to receive forms of all eligible candidates by the end of March, 1982. But thei job was made extremely difficult by the continuous flow of application forms in batches through April and May. As a result, the computer had to produce many roll lists from time to time instead of one consolidated roll list for every class.

'Fictitious' Roll Numbers

Over the years, the University authorities had allowed themselves to be pressurized into accepting application forms directly from student leaders and acquaintances after the last date for submission of forms. Many candidates were allowed to appear in the examinations with the permission of Centre Superintendents who allotted them "fictitious" roll numbers. The University staff was used to this ad hoc manner of functioning and was able to make necessary adjustments while working out the results. In the computer system, there was no scope for accommodating such students. Eligible students were assigned Roll Numbers and Centres were fixed by the computers at the very outset and there was virtually no scope for accommodating students who appeared in the examination at the last minute.

The University authorities were also rather liberal in granting permission to candidates for changing the optional subjects and even their examination centres. Late declaration of supplementary and re-evaluation results also led to changes in the eligibility of candidates. The computer firms were not informed of these changes.

Naturally, several errors crept into the computerized results as illustrated :

- A student, registered to appear at Centre 'X' and who obtained last minute permission to appear at Centre 'Y' was marked absent.
- A student of B.A. who changed one of his optional subjects from History to Political Science, was awarded zero marks in History, ignoring his appearance in Political Science.

Compounding the Problems

To make up for the delay in holding exams, the University decided to send answer-books to examiners directly from Examination Centres, instead of from the University. Also, examiners were directed to send the award-sheets directly to the computer firms. Both these changes were ill-advised. Due to delays in appointment of Examiners, transportation bottlenecks, and carelessness on the part of several examiners, the assessment of answer-books took more time than was anticipated. As award-sheets sent directly to computer firms the University was not able to check them, even on a random basis. Under pressure to tabulate results quickly, the computer firms accepted the award-lists as they were and the errors were compounded.

Failure of Computerization

There was complete confusion and chaos when the examination results were declared during the period September to November 1982. Not only had results been delayed, they were full of errors. The computer confounded the University authorities by declaring that in many cases, it was "unable to work out results." This was either because the information fed to the computer was incomplete or it was not in accordance with the formats agreed upon. Since the computer firms were functioning outside Jaipur, a good rapport could not be established for clearing misunderstandings and bottlenecks. As delays took place, the University mounted pressure on the computer firms through frequent long distance calls, convening of urgent meetings and special messengers. Apart from the enormous cost involved, matters became worse as the relationship between University officials and computer personnel were strained.

The University was on the brink of losing an academic year and there was public outcry against the "computerization mess." In disgust and desperation, the Registrar quit his job. At the request of the Vice-Chancellor, the State Government agreed to depute a specially selected officer from the Indian Administrative Service as Registrar with the specific purpose of restoring the academic calendar and streamlining the administration.

It was a Herculean task for me to clear the arears, to restore confidence of the University and the community in computers and to work out a successful strategy for computerization in 1983 and thereafter. The highlights of the experience in the next three years follow.

Defence of Computerization

The foremost task was to convince the community that the disastrous experience of 1982 was the outcome of a combination of factors most of which were not of the computer's making. The employees' strikes, unfamiliarity with the working of computers, initial resistance to change and the inadequate time available for the switchover were projected as the major causes of failure. A large share of the blame was also assigned to the unsatisfactory and unreliable performance of the computer firms.

The following arguments were advanced in support of computerization.

- the successful use of computers by other universities and the Board of Secondary Examinations, Rajasthan
- the speed, accuracy and neatness of computer work.
- relief to the staff from the drudgery of allotting roll numbers and from the onerous responsibility of making and checking hundreds of thousands of entries
- savings on paper, printing, binding, and envelopes for despatching question papers and overtime payments.

University officials took great pains to explain the advantages of computerization to the University bodies, the enquiry committees, the Unions and to influential individuals within and outside the University community. Efforts were made to convince the critics to view the 1982 experience as a period of trial in very adverse circumstances. It was argued that it would be better to give the University administration another chance instead of throwing out the baby with the bath-water. The services of 'sympathetic' teachers and officers were utilized, The Syndicate and the Finance Committees finally agreed to give computerization one more try for the 1983 examinations.

Remedies

The University took the following remedial action in 1983 and thereafter :

- examination application forms were printed by the University Press during the summer vacations and despatched to the colleges on the re-opening of the University in July
- the Principals were given detailed instructions on how the forms were to be filled and returned to the University. An illustrative list of errors committed in the previous year was circulated
- the University set up a monitoring and review cell to ensure the timely receipt and checking of application forms
- after deliberations with the concerned staff, deadlines for checking forms for each class were prescribed
- mutually acceptable dates were fixed for completion of each stage of the work by the University and the computer firms. The preparation and implementation of these schedules involved detailed microlevel planning, extensive coordination and intensive monitoring by the Registrar and other senior officers
- as far as possible, the University authorities did not accept any application for last minute changes of optional subjects or centres. If a few changes had to be made due to unavoidable circumstances, the computer firms were immediately informed

- the practice of Centre Superintendents permitting students to appear in the examinations with "fictitious" roll numbers was done away with
- the experiment of sending answer books directly to examiners and award-sheets directly to the computer firms was abandoned.

Results : 1983-86

By 1985, the academic calendar of the University of Rajasthan, Jaipur had been completely regularized. Table 1 shows the reduction in the time taken in declaration of results since 1982. Though other factors like the central evaluation of answer-books and the streamlining of the administrative system made a major contribution to this success, the role of computerization was critical. Encouraged by its experience, the University is seriously considering the computerization of personnel records, payrolls, and inventories.

Table 1 : Time Taken for Declaring Results

Examination	Days from the date of last paper Manual		Computerized	
	1978	1982	1983	1984
Pre-University Arts	65	98	35	16
Ist Year Arts	72	109	42	29
IInd Year Arts	76	116	45	22
IIIrd Year Arts	57	107	32	32
Pre-University Science	54	68	33	11
Ist Year Science	30	65	30	23
IInd Year Science	71	90	21	18
IIIrd Year Science	40	72	14	24
Pre-University Commerce	83	116	40	18
Ist Year Commerce	71	103	27	12
IInd Year Commerce	79	100	28	17
IIIrd Year Commerce	57	110	24	23

The validity of the cost saving arguments can be seen from the expenditure per student in the manual and computerized systems of examinations shown in Table 2. By 1985, computerization had reduced the per capita cost of conducting examinations to half the manual cost in 1981.

Table 2 : Cost of Processing Examination Work

Year	Manual	Computerized			
		Under-graduate (Main)	Under-graduate (Supplementary,	Post-graduate	Professional
1982	5 to 5.27	3.40 to 3.50	1.08*	2.50	—
1983	-do-	2.78 to 2.84	2.78 to 2.84	2.40	2.75
1984	-do-	2.67 to 2.75	2.67 to 2.75	2.30	2.65
1985	-do-	2.47 to 2.51	2.47 to 2.51	2.10	2.50

* Plus Rs. 10,000 for software

Administrative Convenience

Computerization was also administratively convenient. Handling of registers became easier. Voluminous hard-bound tabulation registers containing entries in the indifferent handwriting of hundreds of employees were replaced by convenient and neat computer records. The output of the computer was also free from overwritings and crossings out thereby making tampering of records far more difficult.

The computer was able to produce a variety of data and statistics required by the University from time to time for preparation of reports and submission of information to University bodies, the State Government and the Legislature.

Apart from early release of results, students did not have to wait weeks for their mark-sheets. They were issued on the day the results were declared. The students came to realize that computerization made them less dependent on the whims and fancies of numerous University clerks.

Good Rapport

Both the computer firms which had been hired in 1983 continued to render satisfactory services up to

1986. Over the years, an almost perfect rapport and understanding developed between the university authorities and the computer firms and between the computer firms themselves. The University administration ensured prompt payments to computer firms in accordance with the terms and conditions of the contract. An illustration of the mutual cooperation between the two is provided by the fact that the Registrar approached the State Electricity Board to ensure uninterrupted supply of electricity to the computer firms during peak periods of work. The computer firms helped each other to maintain schedules in case either's computer went 'down' during critical stages of work.

The streamlining of the internal administration of the University resulted in the timely feeding of correct inputs to the computer. Many refinements were made in the computerization process. As the identity of the computer firms became widely known, extra precautions were taken for safety and secrecy of the records.

Today, no one can visualize a return to the manual system. The University of Rajasthan's example is being held up as a model for other universities to emulate.

Comparison of the Two Approaches

A comparison of the two approaches to computerization of examination results—one in 1982 and the other between 1983 and 1985—is made in Table 3 at the end of this article. The approach in 1982 can be summarized as ad hoc, and the approach from 1983 onwards as systematic and well-planned.

Recommendations

Based on my experience of computerization in the University of Rajasthan, I would make the following recommendations for computerization of large data systems :

- the timing for introduction of a major innovation like computerization of examination results should not coincide with a period of turmoil, uncertainty and administrative disarray.
- a general understanding of the benefits of computerization and a desire to bring about change are not sufficient. The ground has to be prepared well in advance with the aid and advice of experts. There is no substitute for a thorough systems analysis with particular emphasis on identification of exceptions from the routine
- the active involvement of officers and employees is a pre-condition for computerization. Their psychological apprehensions should be viewed sympathetically. They should be given a fair and adequate opportunity to fully understand the implications of the change and to come to terms with it
- in purchasing or hiring computers, the organization should not be unduly influenced by the aggressive salesmanship of computer firms. Experience and antecedents, capacity and track record of bidding firms should be thoroughly screened before awarding a contract. Contracts should be worded carefully and scrutinized by legal and computer experts
- the organization should be willing to accept the discipline imposed by computers. Instructions relating to computer work should be precise and unambiguous. Responsibility for adhering to deadlines for submission of information and feeding of inputs ought to be specially assigned. Last minute changes should be avoided
- it would be useful to bear in mind that computers cannot make up for human errors; in fact, they complicate and compound them
- policy or procedural changes, necessary for switchover to computerization, should not be postponed or avoided
- last but not the least, the decision to go in for computerization of large data systems must enjoy the support and confidence of the entire organization.

The experience of the University of Rajasthan illustrates the hazards of an ad hoc trial and error approach towards computer applications. No University can afford to play havoc with the careers of lakhs of students by making them guinea-pigs in an experiment which it is not fully and adequately prepared to undertake.

Table 3 : A Comparison of Two Approaches to Computerization

Issues	Approach in 1982	Approach 1983, '84 & '85
(1) Context for introduction/ continuation.	*Ad hoc* response to desperate situation, administrative system in disarray, period of turmoil and uncertainty.	Decision to continue with computerization taken after careful deliberations and consultations.
(2) Prior analysis of systems.	Done perfunctorily, mostly left to computer firms who had no experience.	Indepth systems analysis and programming on the advice of computer experts and experience.
(3) Involvement of staff.	Only a few officers and clerical staff involved.	Involvement, participation and coordination of all units and important functionaries; computer experts and firms regularly consulted.
(4) Orientation of staff for switch over.	None	Through regular meetings orientation sessions and on the job training in collaboration with firms.
(5) Creating an environment for change.	University bodies not consulted, Unions ignored; State Government not kept in picture; press not informed.	Consultation with University bodies, Unions taken into confidence, State Government kept abreast of developments, and press briefed.
(6) Award of work to computer firms.	To outside firms : negotiations conducted by Registrar and the Controller of Examinations, limited knowledge about antecedents and capacity of firms; influenced by aggressive salesmanship of computer firms and conditions left vague; work allotted in an *ad hoc* manner.	To local firms through open tenders on the advice of computer experts, antecedents; experience and capacity of successful bidders verified in advance; terms and conditions carefully drafted and legally vetted; reputation and performance cross-checked with other users; work allotted as per capacity and expertise of firms.
(7) Interaction with computer firms, delineation of responsibilities and working out agreed formats and time schedules.	Limited interaction, duplication of responsibilities among staff of Examination Branch; no time schedules; formats arbitrarily prescribed or left to computer firms.	Continuous interaction between University and computer personnel, clear responsibilities assigned; deadlines set for University and computer firms; formats designed after in-house discussions and consultation with computer firms.
(8) Payments to computer firms and workin g relationsh ip with them.	Payments delayed, lack of communication; relationships strained.	Prompt payment, close interaction; excellent working relationship.

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THE CHALLENGE BEFORE US

Highlighting the meaning and need for highest calibre and self reliance, Prof. M.G.K. Menon, Scientific Adviser to Prime Minister and Member, Planning Commission, exhorted the graduates of IIT, Delhi while delivering the Convocation Address on February 4, 1989 to show qualities of "leadership and involvement in creating the new models and structures" of development. Excerpts

In the Centenary Year of Jawaharlal Nehru, it would be appropriate to recall in his words the objective with which the Indian Institutes of Technology were established : "to provide scientists and technologists of the highest calibre, who would engage in research, design and development, to help...towards self-reliance in her technological needs." On an occasion such as this, when a new generation is emerging from the portals of this distinguished Institute, and as we celebrate the Centenary of that great visionary, we should search our hearts to find out to what extent this expectation has been fulfilled. In the above words of Jawaharlal Nehru concerning the objectives of the Indian Institutes of Technology there are, in my view, two key phrases : "highest calibre" and "self-reliance". I would like in this address to elaborate on these.

Highest Calibre

The Indian Institutes of Technology were created to be centres of excellence in the areas of science, engineering and technology. Ever since they were set up, they have attracted the very best students in the physical and mathematical sciences from the Indian school system. No doubt, the best that were available were selected for the faculty, and appropriate campus facilities, equipment and infrastructure were provided. But the most important factor that has kept up the quality up to now has been the high calibre of students coming into the system. Those of you receiving degrees today can be truly proud of your contribution to the excellence of your Alma Mater.

Over a period of time, there has been the natural problem of ageing, with obsolescence of equipment and facilities, induction of inappropriate administrative practices and not being able to keep up with the tremendous advances that characterise science and technology in the world today. These aspects have been taken note of by the IIT Review Committee which submitted its Report at the end of 1986. And I hope that the recommendations of the Review Committee will be implemented so that most of the material aspects that are necessary for the continued success of these institutions are taken care of. The country can ill afford not to support and nurture institutions that it set up with such fond hopes and aspirations three decades ago to generate leadership in the areas of science based engineering.

I would, however, like to stress the fact that excellence does not lie primarily in buildings, equipment and financial resources. It represents an attitude of mind. Some years ago, when I gave the Presidential Address at the 69th Session of Indian Science Congress Association at Mysore in 1982, I had quoted from Prof. Hans Krebs, Nobel Prize winner who had remarked : "If I ask myself how it came about that one day I found myself in Stockholm, I have not the slightest doubt that I owe this good fortune to the circumstance that I had an outstanding teacher (Warburg, who was himself a student of Emil Fisher) at the critical stage of my scientific career. He set an example in the methods and qualities of first rate research". The essential point we have to keep in mind is that distinction develops if nurtured by distinction; there is a Tamil proverb which says, "Only the learned can recognize the learned". It is attitude rather than knowledge which is conveyed by a distinguished teacher; as also enthusiasm, which is the only basis on which exceptionally hard work, that is ultimately required, is put in. An important element of attitude that a great teacher imparts is that of humility, and from it flows a self-critical mind and the continuous effort to learn and to improve. I hope that each one of you will remember these aspects of the methods and qualities that define first rate research, enthusiasm, hardwork, humility, and a self-ciritical mind, that are important elements for attaining excellence.

The creation of centres of the highest calibre calls for an environment in which human beings stretch themselves to the limits of their abilities. The outstanding teacher attracts the finest students, and creates an overall intellectual atmosphere in which there is team spirit, with individuals pushed to the very limits of their intellectual capability, and also each deriving strength from the other in a resonant and supportive manner. It is this that we should aim at creating in the country. Cambridge University in England has been one of the finest examples of this in the history of science, with the flowering of nuclear physics there over the first third of this century and later of molecular biology. This, however, demands the highest standards in the selection of teachers as also of students, and flexibility in management.

Under the banner of equality and democracy, circumstances operate powerfully against the development of quality in science; very often I fear we have too much of equality and too little promotion of excellence. This is not a matter which is the responsibility of Government alone. A major responsibility of course is of the scientific and academic community which must recognize excellence as something precious, which requires the entire effort of the community to cultivate and nurture, and not something to be destroyed through envy and jealousy, and for the petty considerations of individuals and groups.

Homi Bhabha had remarked : "For every thousand scientists who can do reasonably good work in a good scientific atmosphere, there is only one who can create the atmosphere for himself in a place where it does not exist, and this alone is a test of the outstanding scientist". As we celebrate this year the centenary of the birth of C.V. Raman we may recall with pride not only the areas of science opened up by his work, in which there is so much dynamic progress sixty years after his Nobel prize winning discovery, but also the large numbers of his students, among whom were scientists like K.S. Krishnan, K.R. Ramanathan and others who carried the torch to a further generation of scientific excellence, self-confidence and dedication. That is indeed the guru-shishya parampara.

Homi Bhabha had also remarked : "We in India are apt to believe that good scientific institutions can be established by Government decree or order. A scientific institution, be it a laboratory or an academy, has to be grown with great care like a tree. Its growth in terms of quality and achievement can only be accelerated to a very limited extent. This is a field in which a large number of mediocre or second rate workers cannot make up for a few outstanding ones, and a few outstanding ones always take at least 10 to 15 years to grow".

Self-Reliance

I would now like to address myself to certain aspects concerning self-reliance. We are now approaching the end of the Seventh Five Year Plan. Ever since planning was initiated in India as a major plank of our development process its four cardinal objectives have been : (1) growth; (2) equity; (3) modernization; and (4) self-reliance. I would assert that without true self-reliance, it would not be possible to achieve the first three objectives, since the motive force would be missing. Self-reliance implies the ability to analyse problems, to define tasks and objectives, to tap information and know-how which is needed, from wherever it is available but on a specific basis, with self-confidence to develop whatever needs to be developed, and to bring to bear qualities of innovation which are essential for low cost, replicable and most appropriate solutions. Self-reliance does not imply self-sufficiency. We are aware that various parts of the country depend on each other for products and services, as also various strata in society; this is a natural result of trying to optimally use resources and skills on a shared basis. Developments in science and technology have made the world a relatively small inter-dependent place. Nations also exchange products and services; this should be in a manner which should ultimately be beneficial to all—which is not today the case, leading to the great inequalities that one sees, of the "haves" and the "have nots". In this context, self-reliance implies the ability to deal with others in the world on the basis of mutuality rather than of dependence. India as a large developing country, and as part of the comity of non-aligned nations has a major responsibility to demonstrate the quality of national self-reliance, and in cooperating with other developing countries so as to build self-confidence on a mutual basis. It is only from such strength from within that one can bring about a world free of social injustice and exploitation.

Self-reliance demands a national commitment and political will. It involves many facets of technology policy, industrial policy, financial policy, human resource development, and management. But clearly, the crucial element of self-reliance, in a world whose economy and life styles are increasingly dominated by scientific and technological advances, has to be a self-reliance base of science and technology.

Indira Gandhi had remarked : "Self-reliance must be at the very heart of S & T planning. There can be no other strategy for a country of our size and endowments. While we all readily pay obeisance to this concept, there are too many and too frequent lapses. Considerations like security, the time factor, performance guarantees and costs often compel us to buy advanced technology from the international market. But in the ultimate analysis, neither true defence nor true development can be bought or borrowed. We have to grow them ourselves...Self-reliance does not mean making everything ourselves but acquiring the capacity to do so when things come to a head."

Often self-reliance is regarded as being of importance only in the case of strategic and sensitive areas; since in these fields embargoes are often placed on purchase of equipment or transfer of technology. A case in point is the area of nuclear science and technology. Here, through efforts over the last four decades, we now have capabilities extending over the entire fuel cycle from exploration to the production of fuel elements of various types, and the design, construction and operation of power reactor systems. One has, for example, mastered technologies relating to the handling of titanium, zirconium, beryllium, uranium, thorium, plutonium, sodium, steels of various types —all of which are required in the nuclear programme. In another area of high technology, that of space, in 1988, a wholly Indian designed and built satellite for remote sensing—IRS-IA, was launched; it is one of the sophisticated satellites in the world for this type of work. The INSAT satellites which serve three functions of telecommunications, radio and TV networking and remote sensing were basically conceived and designed in India. We are now moving ahead significantly in the area of launcher development. In defence, one is moving quite fast in the areas of sophisticated radars, electronic warfare systems, main battle tanks, guided missile systems, and the like.

However, one must remember that self-reliance is also needed in areas other than these strategic and sensitive areas. More than two decades ago we learnt the importance of self-reliance on the food front when, with successive droughts, one had to meet the country's food needs through large scale imports; it was then clear that this would not be a feasible proposition in the long run. From around 50 million tonnes of food grain production in the early 1950s we hope to achieve around 170 million tonnes this year; science and technology has made an important contribution to this achievement.

But as we think deeper about the concept of self-reliance, it is clear that what one ultimately needs is self-reliance at the individual level, at the level of the community, and in all activities in society, many of them of a routine and day-to-day nature. Self-reliance must lead to a situation where, starting with society as it is, with its skills and capabilities and the natural resources available to it, it should be able to devise ways and means to meet its needs; and progressively to meet these at lesser-cost, with less drudgery and hardship, and on a more long term sustainable basis, through innovation and continued upgradation of the technologies in use. It is this empowerment of the individual and the community, from the grassroots levels, that is the heart of true self-reliance.

The Challenge Before Us

There has often been the feeling that technology is relevant only to large scale manufacturing industry; and therefore, the products of the IITs can only relate to this sector. This is not true. The products of an IIT are in the first instance, some of the best of our school system. Then, they have been given a broad based education to become engineer-scientists, rather than a narrow training in some particular skill, technique or area of production. With this background, they can be expected to contribute to all sectors of national development where innovation is called for. Thus we have today Agricultural Technologies and Medical Technologies. With recent advances of Life Sciences there are wholly new opportunities over a range of Biotechnologies. We are moving into the new Age of Informatics. And information handling, or the capability to create order from disorder, will be called for in all areas of human endeavour. One would, therefore, hope that those emerging from the IIT system would turn their attention to the major problems that the country faces such as in : water management ; employment generation ; creation of centres in rural areas for appropriate industrial growth, particularly small and medium scale units capitalizing on local resources ; development of technologies that are energy intensive and less polluting; development of non-conventional renewable sources of energy; blending of frontier technologies with those that are largely in use with the skills available to the majority in society; low cost construction; and the like.

When I refer to these areas of priority and thrust, many who have been oriented to models of development that today characterize the developed countries, and the highly visible role of science and technology in these, would argue that these are not areas for the scientist-engineers who are products of IITs. This is because of the assumption that we know what the correct model of development is; and in most of these so-called day-to-day areas it is a simple matter of using existing knowledge and better management. My argument in this matter would be that the model of development that we see today in the presently advanced countries is wholly in appropriate for the world as a whole. It involves high energy intensity, wasteful use of natural resources particularly non-renewable ones, and is environmentally damaging. This model cannot be replicated globally; and any attempts to do so will lead to unacceptable environmental damage and non-sustainability. Development that has taken place in the advanced countries has been based on colonial and exploitative approaches. We need to look for completely new models for development; and for this, we need major innovative inputs, and particularly the use of the great powers that we know are inherent in science and technology. And these are the challenges that I would pose to the scientist-engineers of the IITs. Not only will these new approaches be of the greatest relevance to India, but can be a trail blazer for the developing world as a whole.

Indeed the Technology Policy Statement announced by the Government of India in January 1983, states "The use and development of technology must relate to the people's aspirations. Our own immediate needs in India are the attainment of technological self-reliance, a swift and tangible improvement in the conditions of the weakest sectors of the population. and the speedy development of the backward regions. India is known for its diversity. Technology must suit local needs; and to make an impact on the lives of ordinary citizens, must give constant thought to even small improvement which could make better and more cost-effective use of existing materials and methods of work. Our development must be based on our own culture and personality"

This then is the challenge that we as scientists and technologists face.

In the half century prior to Independence we had outstanding men of science who made great contributions in basic research. Since Independence, we have created an extensive infrastructure and wide ranging capabilities over diverse fields of science and technology. We have had many significant achievements, particularly in areas where clear cut tasks have been assigned. At the same time, we are aware of weaknesses, particularly in the areas of innovations in design and engineering. There are many newly emerging fields in electronics and informatics, in new materials, robotics and automation, biotechnology, etc., which are going to have profound and widely pervasive impact on life and development. It is in all these areas that one has hopes of the strength of our IIT system contributing to our national endeavour, and particularly in bringing us to a leading position in the world in selected areas. I have talked of the need for a new model of development, and role of innovation in charting out these new pathways for sustainable growth. While most in society normally look to creative and gainful employment in existing well established structures, I would expect from the products of the IITs something much more : leadership and involvement in creating the new models and structures. It required a Homi Bhabha to suggest the possibility of a nuclear energy programme in 1944. There is a story attributed to Lord Rutherford which is entirely appropriate and with which I would like to conclude. When a journalist asked him, "Lord Rutherford, you always seem to be riding the crest of the wave", pat came the answer. "Damn it. I created the wave, didn't I ?" I would like to convey to all of you who are graduating, my very best wishes for creating the wave and riding on its crest. ☐

Orientation Programme for University and College Teachers

The Academic Staff College of the University of Jodhpur recently concluded its Sixth Batch of the Orientation Programme for University and College Teachers. Drawn from the three faculties of Arts, Science and Commerce the four week course which began on 19 December 1988 attracted eighteen participants from Fourteen institutions.

Dr. M.L. Mathur, the Vice-Chancellor of the University, while inaugurating the Orientation Programme said that the National Policy on Education (NPE) had provided for opportunities to teachers for their professional and career development as it recognised that the quality of education depended on a teacher's motivation. And to enhance this motivation of teachers, specially designed orientation programmes in teaching methodologies, pedagogy, education psychology, awareness of physical, social and economic environment and problems facing society, were desirable. Newer methods of teaching and educational technology have made the job of a collegiate teacher both exciting and demanding, he said. Teaching, the Vice-Chancellor said, is no longer merely an art, it is a judicious mixture of art, science and technology. The explosion of knowledge in almost every academic discipline had made it a necessity for any teacher to continuously update his knowledge.

For the newly appointed teacher participants, the programme had as its objective : (1) The significance of education in general and higher education in particular in the Indian and global context (2) Linkage between economic and socio-cultural development with particular reference to Indian polity; (3) Acquire and improve basic skills of teaching at the College/University level; (4) Understand college/university organisation and his role in the total system; and (5) Develop his personality, initiative and creativity.

Broad content areas of the completed course were Organisational Behaviour and Environmental Awareness, Educational Psychology, Personality Development and Pedagogy, Professional Ethics, Policy Making Process in Education, Effective Teaching and Research Skills, Education Technology, Modern Management Techniques, Reference Skills, Financial Administration, Service Rules, Management of Student Services, Student Problems, Distance Education" etc.

Panel discussions were organised on : 'Higher Education—Present Scenario; and on 'Economic Environment' while Group discussions were held on 'National Policy on Education', and 'Code of Conduct for Teachers'.

Four sessions were devoted to the Workshop on 'Developing Skills in designing the ideal Question Paper.

The sessions on 'Problems of Higher Education' which involved three senior university students from separate disciplines and also two prominent persons from among parents/guardians, was 'Brain-storming' and proved very popular. The course concluded with a Seminar on 'What Universities/Colleges can do for National Development' wherein the participants read their Term Papers on this subject.

In all, ten instructional methodologies were followed; viz; Micro-Lab, Lecture-cum-Demonstration, Group Discussion, Panel Discussion, Brain-storming, In Basket Exercise, Inter-Active Video Method, Case Study, Book Review and Term Paper Reading.

The Programme consisted of ninety six sessions of one and a Quarter hours each. Of these, twenty five sessions were engaged by resource persons from outside Jodhpur and the rest from within. In addition, forty sessions of same duration were earmarked for Self Training to participants who utilised them for Library reading, writing Book Reviews and their Term Paper on The Role of Academic Institutions and National Development.

The Orientation Programme concluded with the presentation of Certificates of Appreciation. Every participant was also presented with a set of five books, each set costing approximately rupees two hundred.

The valedictory address was given by Dr. D.N. Bhargava, Professor and Head, Dept. of Sanskrit and ex-Dean, Faculty of Arts; University of Jodhpur.

A feature of this Programme was a greater emphasis on group learning and discussions, as compared to the traditional chalk and talk system.

ISAME 1989

An International Seminar on "Analytical Techniques in Monitoring the Environment" was organised at Sri Venkateswara University at Tirupati from Jan. 10 to 12, 1989.

The Seminar was attended by over

180 delegates from various Premier Research Institutes, Universities, National Laboratories, and Consulting organisations belonging to different countries. Over 80 oral presentations and about 65 posters were presented during the seminar, the first of its kind to be organised in India, covering electroanalytical, spectral, chromatographic, radioanalytical and other methods.

Ari Ivaska in his introductory lecture, discussed the application of voltammetric methods in monitoring heavy metals and various gases in the environment. Further he stressed on the disadvantages of using conductometric methods for environmental problems, while S. Jayarama Reddy's group presented their results in different areas like photoelectroanalytical chemistry, analysis of semiconductor materials, drugs, pharmaceuticals and pesticides.

Many applications of chromatographic techniques are now becoming an important analytical tool in environmental monitoring of organic substances. Chakraborthy discussed the use of different chromatographic methods in combination with other analytical techniques such as GC-AAS, HPLS-AAS, GB-ICP etc., in monitoring the environmental problems.

Many papers dealt with the development of novel methods in monitoring the environment. S.M. Khopker described the importance of the air monitoring instruments in India, while Jonnolagadda discussed the necessity in monitoring and controlling the air pollution. Mahadevappa explained flow injection analysis with reference to automation of chemical analysis in the solution phase, wherein a solute is injected into a flowing solvent stream and the solute slug is subjected to detailed investigations.

Spectral techniques are now commonly employed in monitoring toxic metals in the environment. C.K. Mathews described how mass spectral measurements could be exploited not only to monitor the levels of the toxic elements in the environment, but also to understand their transport processes in the biosphere. Rienvatana described the use of Inductively Coupled Plasma (ICP)—Atomic Emission Spectroscopy (AES) in the quantitative analysis of all the elements.

Denschlag explained the measurement of fallout from the chernobyl reactor accident as a tool for accident diagnosis and for risk assessment.

The symposium highlighted a number of advances in the analytical techniques to monitor the environmental problems.

The delegates decided to hold International Seminar on the subject in different parts of the country on a Triennial basis.

A national coordinating committee was set-up to assist in the organisation of the Seminar and to take up a coordinated programme for monitoring the environment in the country., Prof. S. Jayarama Reddy, Deptt. of Chemistry, S.V. University College of Engineering, Tirupati was requested to act as Coordinator for this Committee.

National Seminar on Restructuring the Monetary System in India

Inaugurating the UGC seminar organised by the N.S. Patel Arts College, Anand, recently Hon. State Minister of Education, Gujarat, Dr. Sushilaben Sheth said that Monetary policy is playing an important role in economic development, and Reserve Bank of India has been playing developmental as well as regulatory role in the process of economic development through its role of 'Controlled expansion'.

The Chakravarti Committee for the first time had provided a comprehensive report on the working of the financial system in India.

Dr. T. N. A. Iyer, Managing Director, Discount and Finance House of India, Reserve Bank of India, Bombay, delivering the keynote address said that a new scenario was emerging in the money market in the wake of Chakravarti Committee's recommendation for the development of short-term money market in India. The Discount and Finance House of India is developing the short-term money market by developing short-term monetary instruments like commercial paper, treasury bills, etc.

Seminar Director, Dr. Vipin D. Shah introduced and welcomed the guests and explained the objectives of the seminar. The deliberation of the seminar focussed on four issues namely :

(i) Issues related with restructuring debate on Monetary System in India.

(ii) Development of Financial Sector and Role of Interest Rate.

(iii) Money Supply Analysis in India.

(iv) Role and Conduct of Monetary Policy in India.

Distinguished economists from Gujarat and outside Gujarat participated in the seminar.

Bihar Proposes Free Education for Women

The Chief Minister of Bihar, it is reported has made an announcement in the State Assembly recently that education would be free for women from primary to university level in all faculties. This would be effective from the next financial year.

He is also reported to have said that a sports complex would be constructed at Patna and a sports club would be opened in every secondary school in the state for the promotion and propagation of sports.

HP Varsity's Plan for New Courses

Himachal Pradesh University proposes to start five-year courses in music and fine arts from July this year, it is reported. The Faculty of Performing and Visual Arts will have two wings. The Music Course with eight students each in vocal and instrumental music and the Bachelor of Fine Arts Course with five students each in sculpting, commercial art and painting will be introduced,

Direct Nuclear Reactions

Inaugurating an international seminar on direct nuclear reactions organised by the Physics department of Bangalore University recently, Dr. D.M. Nanjundappa, Vice-Chancellor emphasised that scientific research was not for destruction but for the welfare of humanity. Scientists could not isolate themselves from value judgements about the application of their research.

While policy-makers had to translate research to action which would benefit the public, scientists should also express their views, he said.

Quoting Jawaharlal Nehru, he said India had a legacy of the scientific temper. Science had given humanity the power to remove poverty but men were unwilling to use it and hence unequal distribution of wealth continued.

He regretted that millions of dollars were being spent on research which would lead to the destruction of humanity. Science, if properly used, could lead mankind from death to immortality, he said.

About a 100 scientists, including 25 from various other countries, are participating in the four-day seminar.

News from Agril. Varsities

National Symposium on Indian Agriculture

Dr. M.S. Swaminathan, delivering his concluding lecture on Agricultural Research and Eucation—Needs and priorities' at the Punjab Agricultural University on the occasion of National Symposium on Indian Agriculture in the Year 2000 and Beyond said that by the end of this century the annual production of 230 to 240 million tonnes of foodgrains would be needed to feed human population of 100 crores.

Talking of the challenges ahead he said there was urgent need for greater efforts in the development of technologies which could enhance, on an ecologically sustainable and economically viable basis, opportunities for skilled employment and income generation in rural areas. Youth and women should receive particular attention since two of the major challenges being faced in villages were the flight of educated youth from the villages and the low and uncertain incomes and enormous drudgery of women. For meeting the challenges Dr. Swaminathan suggested that priority attention should be given to the integration of traditional rural technologies with new technologies. He further suggested to undertake jointly with rural families a 'Rural Systems Research Programme' giving concurrent attention to the primary, secondary and tertiary sectors of economic activities in the villages. He added that for achieving these goals we would need several changes in our current approaches to technological development and dissemination.

Dr. Swaminathan further suggested that the Punjab Agricultural University should establish jointly with farmers associations 'Technology Blending Centres' in each block for the purpose of integrating traditional and frontier technologies such as bio-technology, information technology, space technology and management technology in a manner that will combine the ecological and economic strengths of both. For this purpose, he said, the University should strengthen its infrastructure for research and training in bio-technology including bio-processing, information technology, space technology and management technology. He also suggested that the University should strengthen its capability in maintenance research.

Dr. Sukhdev Singh, Vice-

Chancellor of the Punjab Agricultural University welcomed the Chief Guest and introduced him to the audience.

Shri A.S. Pooni, Financial Commissioner (Development) Punjab who chaired the Lecture stressed the need for developing location-specific technologies. He added that the farmers who are the ultimate users of new technologies should be actively associated with all technical development programmes. He further said that in the present world of knowledge explosion the curriculum should be suitably modified catering to the emerging needs of researchers, extension workers and the farmers.

Dr. B S. Dhillon, Dean, Post-graduate Studies at PAU proposed the vote of thanks.

TNAU Spearheads Ecological Agriculture

The fourth International Training Course in Ecological Agriculture was organised by the Tamil Nadu Agricultural University recently. Dr. S. Jayaraj, Vice-Chancellor, Tamil Nadu Agricultural University, in inaugurated the seminar. He emphasised the role of organic farming in preserving ecosystems in agriculture and the importance of biofertilizers such as Rhizobium, Azospirillum, Azolla, Phosphobacteria and blue green algae and green manure in increasing crop production and maintenance of soil health. Over a period of years, the reduction in application of organic manures has led to serious derangement in the micro-environment in soil and he called upon the scientists and extension workers to rectify this defect. Use of micro-organisms and plant products in the control of pests and diseases was also emphasised. The industrial effluents and pollutants can also be degraded effectively by micro-organisms. In his opinion, the sustainable agricultural production could be achieved through judicious blend of organic and inorganic inputs in the cultivation of crops. The Vice-Chancellor also outlined the various spheres of researches conducted in preserving and maintaining the ecological balance in agriculture which could be shared by the developmental agencies and researchers of different tropical countries in the region.

Dr. S.P. Palaniappan, Dean (Agriculture) welcomed the participants and emphasised that the sustainability in agriculture and allied activities is the need of the day and every effort should be focussed towards this end.

Dr. M. Rangarajan, Professor of Agricultural Microbiology and Coordinator of this training course, in his report mentioned the outcome of the previous training programmes. In the programme, all the basic components of ecological agriculture were given due weightage.

Mr. Erik, Adviser of AME Project Pondicherry outlined the major research thrusts on ecological agriculture in International forum and the interdisciplinary efforts needed to maintain a healthy ecology.

Seventeen participants from Nepal, Sri Lanka and various parts of the country participated in the seminar.

Seminar on Plant Physiology

A two-day national seminar on plant physiology research imperatives for the nineties, sponsored by the Indian Society for Plant Physiology, was organised at C.S. Azad University of Agriculture and Technology, Kanpur.

Dr, H.G. Singh, Dean Agriculture welcomed the guests and emphasised that a further breakthrough in agricultural productivity of different crops could be brought about through physiological approaches.

He called upon plant physiologists to contribute more meaningfully to solve problems of productivity in different crops and laid stress on the need for evolving more suitable and convenient parameters for assessing their physiological efficiency.

The seminar, which focussed at topics directly related to productivity increase in a wide range of crops including cereals, pulses, fibre, potato, vegetables, fruit plantation and grassland crops was inaugurated by Mr. Shumshad Ahmed, Vice-chancellor of the university.

In his inaugural address Mr. Ahmed dwelt upon the important contributions of plant physiology to agriculture and the areas where research needs being concentrated.

The Vice-Chancellor released a booklet on 40 years of research in plant physiology at a function at the department of crop physiology of the university.

The seminar was attended by 175 delegates from all over the country.

During the technical sessions Prof. Afridi delivered the T.M. Das endowment lecture for the year 1988-89 in which he laid emphasis on modelling of crop plants for stress environments and biotechnical approaches.

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertation as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Gnana Bhaskar, T. *A study of mixed ordinary differential operators.* Sathya Sai. Dr. M. Venkatesulu.

Physics

1. Choudhary, Anju. *Weak interaction phenomenology.* Delhi. Dr. S.R. Choudhury, Department of Physics, University of Delhi, Delhi.

2. Goyal, Navdeep. *Effect of impurities on the electrical properties of amorphous semiconductors.* Panjab. Dr. K.N. Lakshminarayan, Department of Physics, Panjab University, Chandigarh.

3. Jayanth, P. *Theoretical and experimental study of vibrational modes of some percussion instruments.* Sathya Sai. Prof. K. Srinivasan, Department of Physics, Sri Sathya Sai Institute of Higher Learning, Prasanthinilayam.

4. Saha, Manika. *Crystal growth and characterization of ome layered structures.* Prof. C. C. Trigunayat, Department of Physics, University of Delhi, Delhi.

5. Singh, Vindeshwar. *Topological phase in quantum mechanics.* Delhi. Prof. S.N. Biswas, and Dr. K.K. Dutta, Reader, Department of Physics and Astrophysics, University of Delhi, Delhi.

6. Talwar, Praveen. *Study of Rf sputtered thin films.* Delhi. Prof. Abhai Mansingh, Department of Physics, University of Delhi, Delhi.

7. Valia, Davinder Kaur. *Investigation of tosephon effect on the thin and thick films of high tc superconductions.* Delhi. Prof. S C. Pancholi and Dr. A.K. Gupta, Department of Physics and Astrophysics, University of Delhi, Delhi.

8. Verma, Sandeep. *Study of high tc superconductors.* Delhi. Prof. P.N. Dheer, Department of Physics and Astrophysics, University of Delhi, Delhi.

Chemistry

1. Bile, Suchita. *Study of some drug complexes of iron and cobalt.* HS Gour, Prof. M.S. Kachhawaha, Department of Chemistry, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

2. Chander Prakash. *Transport properties of ethylene-glycol and diethylene-glycol throuph some inorganic membranes.* HP. Dr. R L. Blokhra, Department of Chemistry, Himachal Pradesh University, Shimla.

3. Dube, Kiran. *Chemical and polymerization studies of oils obtained fron non-conventional plants.* HS Gour. Dr. J.T. Rao, Reader, Department of Chemistry, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

4, Gupta, Satish Kumar. *Solution stabilities of some lanthanide (III) mixed ligand complexes.* HS Gour. Prof M.C. Saxena, Department of Chemistry, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

5. Jain, Praveen Kumar. *Synthesis and their biological activities of some novel derivatives of heterocyclic compounds.* HS Gour. Dr. S. K. Shrivastava, Department of Chemistry, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

6. Jain, Savita. *Studies on sapogenins and their glycosides from some indigenous Leguminosae plants.* HS Gour. Prof. V.K. Saxena, Department of Chemistry, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

7. Jha, Anil Kumar. *Studies on chemical nature and biological activities of plant products and other synthesised compounds.* HS Gour. Dr. J.T. Rao, Reader, Department of Chemistry, Dr, Hari Singh Gour Vishwavidyalaya, Sagar.

8. Khatla, Anil Kumar. *Thermodynamic and transport properties of some solutions involving carbohydrates.* H.P. Dr. R.L. Blokhra, Department of Chemistry, Himachal Pradesh University, Shimla.

9. Koul, Anjni. *Chemical analysis of the seed oils from wild species of plants in Central Himalayas.* HP. Dr. C.S. Pande, Department of Chemistry, Himachal Pradesh University, Shimla.

10. Kunchandy, Sam. *Studies on some lanthanide complexes of Schiff bases.* Kerala. Dr. P. Indrasen, Reader, Department of Chemistry, University of Kerala, Trivandrum.

11. Narad, Sandeep. *Physiological, microbial and pharmacological studies on some antibiotic, antiseptic and antidiabetic drug complexes with some life essential metals.* HS Gour. Dr. K.S. Pitre, Reader, Department of Chemistry, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

12. Pandey, Indresh Kumar. *Synthesis and characterization of some coordination complexes of copper (II) nickel (II) and cobalt (II) with nitrogen containing ligands.* HS Gour. Dr. Gopal Narayan, Reader, Department of Chemistry, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

13. Purohit, Manish. *Synthesis of some novel compounds derived from heterocyclic ring and evaluation of their biological activity.* HS Gour. Dr. S.K. Shrivastava, Department of Chemistry, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

14. Rajesh Kumar. *Ultrasonic studies of some solutions involving isopropyl alcohol.* HP. Dr. R. L. Blokhra, Department of Chemistry, Himachal Pradesh University, Shimla.

15. Rohan, Yadavendra. *Characterization of some pollution parameters in water samples : A case study of Sagar Districts of M.P.* HS Gour. Dr. K.S. Pitre, Reader, Department of Chemistry, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

16. Rohit, Virendra Kumar. *Studies on the flavonoidal constituents of some indigenous Hibiscus plants.* HS Gour. Dr. R.N. Yadav, Dhpartment of Chemistry, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

17. Saini, Vinod Kumar. *Chemical and antimicrobial studies of volatile constituents of some indigenous medicinal plants.* HS Gour. Dr. R.N. Yadav, Department of Chemistry, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

18. Sharma Namita. *Synthesis and characterization of some hydroxamic acid derivatives.* HP. Dr. B. N, Mishra, Department of Chemistry, Himachal Pradesh University, Shimla.

19. Shrivastava, Tripti. *Kinetics of vanadium (V) : Oxidation of some amino acids by vanadium (V) in sulfuric acid medium.* HS Gour. Dr. G.L. Agrawal, Reader, Department of Chemisry, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

20. Singh, Ratan Kumar. *Study of some drug complexes of copper and zinc.* HS Gour. Prof. M. S. Kachhawaha, Department of Chemistry, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

21. Singh, Shashi. *Chemical analysis and biological studies of natural products.* HS Gour. Dr S. C. Garg, Reader Department of Chemistry, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

22. Sreelatha, S. *New regents in liquid-liquid extraction studies of rare earths.* Kerala. Dr. C.S. Narayanan, Head, Division of Food and Dr. T. Prasada Rao, Scientist, Regional Research Laboratory, Trivandrum.

23. Thakur, Hari Krishan. *Determination of organic pesticides in their formulated products and residues on foodstuffs.* HP. Or. B. C. Verma, Department of Chemistry, Himachal Pradesh University, Shimla.

Earth Sciences

1. Sirjana. *Contribution to the microfauna and microflora of the Deccan intertrappean beds of parts of Peninsular India.* Panjab. Prof. S.B. Bhatia, Department of Geology, Panjab University, Chandigarh.

BIOLOGICAL SCIENCES

Biology

1. Sofiamma, M. A. *Studies on marine algae along the South West Coast of India.* Kerala, Dr. K. Dhevandran, Reader, Department of Aquatic Biology and Fisheries, University of Kerala, Trivandrum and Dr. S. Premjith, Prof., Department of Zoology, St. Juda's College, Thoothoor.

Biochemistry

1. Gracykutty, T. K. *Characterization and nutritional study of Moringa pterygo sperma Lamk leaf proteins.* Kerala. Dr. K. T. Augusti, Prof., Department of Biochemistry, University of Kerala, Trivandrum.

2. Kumari Jayasree, P. *Regulation of phosphoinsositide metabolism in liver.* Kerala. Dr. Venugopal P. Menon, Department of Biochemistry, University of Kerala, Kariavattom.

3. Mohan Kumar, C. *Histochemical and biochemical studies of oil palm fruit Elaeis guineensis.* Kerala. Dr. R. Kaleysaraj, Prof. and Head, Department of Biochemistry, University of Kerala, Kariavattom.

4. Paul, Joseph. *Biochemical changes in atherosclerosis.* Kerala. Dr. N. Jayanthi Bai, Prof. and Dr. G. Latha Devi, Prof. and Head, Department of Biochemistry, Medical College, Trivandrum.

5. Saaji, Oommen P. *Biochemical studies on pectin.* Kerala. Dr. N.R. Vijayalakshmi, Reader, Department of Biochemistry, University of Kerala, Kariavattom.

6. Toteja, G.S. *Purification of sperm membrane antigens from non human primates for inducing infertility.* Devi Ahilya. Dr. M.M. Lalorya, Head, and Dr. (Smt.) Rajlaxmi, School of Life Sciences, Devi Ahilya Vishwavidyalaya, Indore.

icrobiology

1. Dharmadhikari, C.A. *Study of hepatitis 'B' surface anti-n in various categories.* Shivaji. Dr. (Miss) S.G. Pawar, soc. Prof., Department of Microbiology, Miraj Medical ollege, Miraj.

2. Supanekar, S.V. *A study on microflora of saline soils Sangli District.* Shivaji. Dr. P.L. Patil, Agricultural acteriologist, Mahatma Phule Agricultural University, ollege of Agriculture, Pune.

otany

1. Bhattacharya, Anjana. *Biological N_2 fixation legume hizobium symbiosis.* Delhi. Dr. C.R. Babu, Department of otany, University of Delhi, Delhi.

2. George, Saji Mariam. *Cytological and palynological udies in Caesalpiniaceae.* Kerala. Dr. K.V. Bhavanandan, eader, Department of Botany, University of Kerala, Trivanum.

3. Madhu Mohan Rao, A. *Genetic modification of active ansport system in Thermoactiomyces vulgaris : Relationship tween membrane ATPase and active transport in genetically fferent strains.* Delhi. Dr. Ved Pal Singh, Department of otany, University of Delhi, Delhi.

4. Periyapuram, Cyril C. *Tissue culture studies in Cinnaomum sp.* Kerala. Dr. G.M. Nair.

5. Pradeep Kumar, V. *Cytogenetic and mutagenic potenal of food additives and contaminants.* Kerala. Prof. Susan braham, Department of Botany, University of Kerala, ivandrum.

6. Pradip Kumar, K. *Tissue culture studies in some legus : Selection of celllines resistant to some amino acids alogues and their subsequent regeneration.* Kerala. Dr. M. Nair.

7. Sarasan, V. *Tissue culture studies in some Indian spices.* Kerala. Dr. G.M. Nair.

Zoology

1. Bhatia, Smita. *Hypothalmic control of reproduction in fish.* Delhi. Prof. S.V. Goswami, Department of Zoology, University of Delhi, Delhi.

2. Jain, Renu. *Environment and neuroendocrine control of reproduction.* Delhi. Prof. R.N. Saxena, Department of Zoology, University of Delhi, Delhi.

3. Kurup, Vanti T. *Vitellogenin in fishes.* Delhi. Prof. S.V. Goswami, Department of Zoology, University of Delhi, Delhi.

4. Nagpal, Anita. *Histophysiology of insect flight muscles.* Delhi. Dr. C.L. Talesara, Department of Zoology, University of Delhi, Delhi.

5. Rana, Rajinder Singh. *Aggressive and hoarding behaviour of Apis mellifera Fand Apis cerana F and their role in the pollination of plum and apple bloom.* HP. Dr. L.R. Verma, Deparment of Zoology, Himachal Pradesh University, Shimla.

6. Sathya Narayan T.S. *Population ecology of sibling species of Anopheles cilicifactes.* Delhi. Prof. T.R. Rao, and Dr. S.K, Subbarao, Department of Zoology, University of Delhi, Delhi.

7. Surange, Bharati. *Some cytogenetic aspects of Anopheles species of India.* Delhi. Dr. S.V.R. Rao, and Dr. S.K. Subbarao, Department of Zoology, University of Delhi, Delhi.

Medical Sciences

1. Qadry, Syed Zafar. *Development and evaluation of new coating process.* Delhi. Dr. R. Zafar, Hamdard College of Pharmacy, Hamdard Nagar, New Delhi.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

thematics

1. Anand Rao, J. *Computational techniques in hydroamic and hydromagnetic flows.* Osmania.

2. Ansari, Qamrul Hasan. *On certain problems concerning iational inequalities.* Aligarh. Prof. A.H. Siddiqui, Departnt of Mathematics, Aligarh Muslim University, Aligarh.

3, Chakrabarti, Keya. *Some applications and properties he cantor set and allied problems.* Calcutta.

4. Chandrasekaran, G. *Group theoretic and variational niques for the solution of nonlinear differential equations of sical and engineering systems.* IIT Delhi. Prof. O. P. tani, Department of Mathematics, Indian Institute of hnology, New Delhi.

. Datar, H. G. *Numerical solution of some unsteady ndary-layer flows.* IISc.

. Debnath, Krishnadas. *Study of some flow fields connecwith flame stabilization.* Calcutta.

7. Devsen, K. *Some mathematical models in environmental physiology of plants.* Sathya Sai. Prof. K.B. Naidu, Department of Mathematics, Sri Sathya Sai Institute of Higher Learning, Prasanthinilayam.

8. Jothibai, Annie. *Simultaneous approximation interpolation and norm preservation in normed liner spaces.* Madras.

9. Khan, Mujtaba. *Some contribution to the theory of B. algebra.* Magadh.

10. Mahajan, Savita. *Numerical studies of unsteady double diffusive mixed convective boundary layer flows.* IIsc.

11. Pal, Bhabesranjan. *Studies on the deflection and stresses in plates of variable thickness and of variable elastic coefficients.* Calcutta.

12. Ramakrishna, S. *Flow through porous media.* Venkateswara. Prof. P. V. Arunachalam, Department of Mathematics, Sri Venkateswara University College, Tirupati.

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13. Prabhat Mohan. *Fourier methods in generation system, reliability evaluation and production costing.* IIT Delhi. Dr. R. Balasubramaniam, Centre for Energy Studies, and Prof. K.S. Prakasa Rao, Department of Electrical Engineering, Indian Institute of Technology, New Delhi.

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15. Ray, Ajaipat. *Design development and performance studies of some solar air heaters and dryers for agricultural applications.* IIT Delhi. Prof. H. P. Garg, and Dr. N.D. Kaushik, Centre for Energy Studies, Indian Institute of Technology, New Delhi.

16. Sharma, Mahesh. *To develop methodology of appropriate technological inputs to generate employment in a tribal region.* IIT Delhi. Dr. Rajendra Prasad, Centre for Rural Development and Technology, New Delhi.

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3. **Certificate/Diploma Course on Operation and Programming of Automatic Data Processing Equipment :** *Duration* : 1 year for Certificate and additional 1 year for Diploma if one attains a specified standard in the Certificate Course. *Tuition Fee* : Rs. 200/- per year, no stipend. *Eligibility* : (i) Age bel ow 25 years on 1.4.89, (ii) Bachelor's degree or equivalent with Mathematics as as subject at higher secondary (10+2) level and (iii) acpuired typing speed of 25 words per minute.

All courses/fellowships are offered in Calcutta. In addition, courses **1.2** and **2.1** are offered in both Delhi and Bangalore. For courses **1.3** and **1.4,** ISI written lests and interviews are compulsory even for candidates with valid GATE scores. Programme **2.3** may be offered in any SQC & OR Unit in the country.

Hostel facilities are available. Selection tests for the courses/fellowships wlll be conducted at a number of centres. Candidates who have completed or are due to complete the qualifying examinations before **1 July, 1989** may also apply. This date may be relaxed by the Institute in case of candidates with outstanding academic record and performance in the selection tests and interviews. Candidates should satisfy themselves that they are eligible for admission to the course or for the award of the fellowship for with they apply. If at any stage it is found that a candidate does not satisfy the eligibility conditions or the information furnished in the application is incorrect, the application will be cancelled. Prospectus and application form can be obtained from the **Dean of Studies, Indian Statistical Institute, 203 Barrackpore Trunk Road, Calcutta 703 035,** by paying an amout of Rs. 20/- by cash (between 11.00 a.m. and 2.00 p.m. on working days from Monday to Friday) or by crossed postal order/bank draft payable at Calcutta in favour of **"Indian Statistical Institute".** Postal orders must contain the name and address (in block letters) of the sender. Money orders and cheques will not be accepted.

Lass Date for receiving requests for application forms	:	**6 March 1989**
Last Date for receiving complited application forms	:	**27 March 1989**
Date of Selection Tests	:	**SUNDAY, 14 May 1989**
Tentative dates of interviews	:	**26 June—7 July 1989**

NITIE

Vihar Lake, Bombay-400097

NITIE requires Professor for Programme Development (1 post) and Professor for Extension Centres Development (1 post) in the scale of Rs. 1500-60-1800-100-2000-125/2-2500 (scale is under revision) plus allowances as per Central Government rates. Good Master's Degree or equivalent with a minimum of 15 years' industrial experience in Training/Management Services/Industrial Engineering / Administration of leading organisations. Willingness to travel widely through out India. The incumbents are required to interact with executives of public, private and government organisations, liaison with various sections of this Institute for the development and in-take of participants in Senior Executive Programmes, Executive Development Programmes, Unit Based Programmes, Seminars and Conferenees and such other programmes/activities assigned to him by the Director.

Application on plain paper stating name, age, academic qualifications, indicating class/perce ntage of marks obtained, details of experience and the areas of specialisation should reach the Director, NITIE, Vihar Lake, Bombay 400 087 alongwith a crossed Indian Postal Order for Rs. 7.50 (no postal order for SC/ST candidates) in favour of 'NITIE' payable at Bombay **within two weeks from the date of this advertisement.**

Candidates working in Government/Public Sector organisitions must send their applications through proper channel.

MINISTRY OF HUMAN RESOURCE DEVELOPMENT (DEPARTMENT OF EDUCATION)

AUSTRIAN GOVERNMENT SCHOLARSHIPS 1989-90

Applications are invited on plain paper from Indian nationals residing in India for a restricted number of Scholarships offered by the Austrian Ministry of Science and Research for a maximum duration of 9 months for the academic year 1989-90 for specific Austrian related research projects in the following subject fields :

(i) Archaeology; (ii) Literature; (iii) History; & (iv) Philosophy.

Value : The scholarship includes tuition fees; board and lodging excursions as well as a monthly cash allowance.

Minimum Educational Qualifications : Uniformly good academic record with 60% or above marks at Master's Degree in the above subject fields as the case may be or equivalent qualification in the subject selected or related field.

Essential Experience : At least two consecutive years teaching/research/practical experience in the relevant field after the prescribed qualification. Successful completion of M.Phil./Ph.D will be counted towards experience.

Age : Between 21 and 35 years (Relaxation in age upto two years will be given in the case of SC/ST candidates).

Passage Cost : Travel expenses from India to Austria and back will be borne by the candidate or his/her sponsors/employers. Subject to the availability of funds, the passage cost may be met by the Government of India, provided the candidate is eligible under the rules.

Note : (i) Only candidates with 60% marks and above at the level of minimum qualifications prescribed above are eligible. Where grades are mentioned, the candidate must indicate the conversion formula adopted by the University/Institution as well as the exact percentage of marks. (ii) Candidates who have already been abroad for study/research/training on a scholarship are eligible to apply, only if they have been in India for atleast three consecutive years after return from abroad. (iii) Applications of candidates who are abroad will not be considered. (iv) Equivalent foreign degrees will be considered. (v) Candidates should have adequate knowledge of the geographical situation, culture and heritage of India and the donor country. (vi) Employed persons must send their applications through their employers with 'NO OBJECTION CERTIFICATE' and also a certificate from the present employer guaranteeing the re-employment after termination of scholarship programme in time failing which applications will not be considered. (vii) Applications in subject-fields other than those specified above will not be considered. (viii) Candidates who do not possess the requisite qualifications need not apply. (ix) Applications should be in the prescribed 'Format' and accompanied by Postal Order of Rs. 5/- (Rupee one and paisa twenty five only in the case of SC/ST and other Backward Class candidates) payable to the Secretary, Ministry of Human Resource Development, Department of Education, New Delhi. (x) Applications which do not contain the postal order (or do not mention the number and date of postal order which has been sent alongwith the original application sent through proper channel, where necessary) will not be considered. (xi) One application should be submitted for one subject only. (xii) Canvassing in any form will be disqualified. (xiii) In case no interview letter is received by a candidate upto **17.3.1989** it may be presumed that he has not been found fit for being called for interview. No futher correspondence in this regard will be entertained. APPLICATIONS RECEIVED LATE WILL NOT BE ENTERTAINED.

FORMAT OF APPLICATION

1. Name of the Scholarship Scheme
2. (a) Subject (b) Sub-subject
3. (a) Name of the candidate (in Block Letters) with full mailing address
4. Date of birth and State to which the candidate belongs
5. Whether a member of SC/ST or a tribal or aboriginal community if so, give full particulars.
6. Academic record starting from High School/Higher Secondary :

A recent
Passport
size
Photograph

Name of the Board/University/Institution	Exam(s) Passed	Year of Passing	Division/Class with Position; if any*	% age of marks obtained and position, if any.	Subjects taken.

* (In case no Division/class is awarded and only grading is done, the conversion formula adopted may be mentioned as well as exact percentage of marks).

7. Details of Professional Practical Training and Research Experience specifying the period and number of papers published, previous employment with the same and date of employment, if any
8. Nature of the present employment with date of appointment, designation and the name and address of the employers.
9. Have you been abroad, if so, give full particulars of the country and the period. Also mention the year of return to India.
10. Proposed programme of study/research/training specifying; (i) the work at present engaged in; (ii) future plans prospects after the proposed studies/research; (iii) nature and programme of study/research desired; (iv) How are these related to the technical or economic development of India.
11. Number and date of Crossed Postal Order of Rupees five only (Rupee one and paisa twenty five only in case of SC/ST candidates etc.) attached with the form.

NOTE : Employed persons must send their applications fully sponsored by their employers. However, advance
applications complete in all respects will be considered provisionally pending sponsorship by employers. Applica-
tions must be sent to the Assistant Educational Adviser, Ministry of Human Resource Development (Department
of Education), External Scholarships Division, E.S. 5 Section, Room No. 517, 'B' Wing, Shastri Bhavan, New
Delhi-110001 by **28th February, 1989**.

Place :

Date :

(Signature of Candidate)

davp 88/764

GOVERNMENT OF INDIA
MINISTRY OF HUMAN RESOURCE DEVELOPMENT
(Department of Education)
NETHERLANDS GOVERNMENT SCHOLARSHIPS 1989-90

Applications are invited on plain paper from Indian nationals residing in India for the award of four scholarships offered by the Government of Netherlands for a period of approximately one year for the academic year 1989-90 in the following subject fields :

(i) ELECTRONICS/COMPUTER SCIENCE (AND COMPONENTS) : One scholarship; (ii) Coastal Engineering/Harbour Design and Management : One Scholarship; (iii) (a) Historical and economic relations between India and the Netherlands with special reference to the Dutch East India Company, and (b) Indo-Indonesian Historical ties till 1940 : Two scholarships.

Minimum Educational Qualifications : Uniformly good academic record with 60% or above marks at Master's Degree in Science Engineering/Technology/Humanities as the case may be or an equivalent qualification in the subject selected or related field. The applicant is required to have a good command of Dutch, English or German. If he/she is fluent in French only, he/she should first enquire from Royal Netherlands Embassy, New Delhi whether the course he/she wishes to follow can be provided in this language.

Essential Experience : At least two consecutive years' teaching/research/practical experience as on 20.2.1989 in the relevant field after the prescribed qualifications. Successful completion of M. Phil/Ph.D. will be counted towards experience.

Age : 36 years as on 20.2.1989 (Relaxation in age upto two years will be given in the case of SC/ST candidates). The upper age limit and experience may be relaxed by not more than three months at the discretion of the Selection Committee in the case of brilliant candidates.

Value : The scholarship covers the following benefits payable by the Government of Netherlands : (i) A monthly allowance of Fls. 1,130 for board and lodging, which amount is sufficient for one person only; (ii) A lumpsum payment of Fls. 300 towards outfitting expenses for persons who have to travel to Netherlands; (iii) Reimbursement of travelling expenses in Netherlands (second class rail fare) incurred in the course of the study programme with the approval of study supervisor; (iv) Exemption from the registration and tuition fees payable in Dutch Universities; academies of art and music conservators; (v) Reimbursement of expenses incurred as a result of urgent medical treatment which could not have been foreseen in the country of original. As a general rule this arrangement does not include dental treatment.

Passage Cost : The cost of passage from India to Netherlands have to be borne by the selected candidate or his/her employer/sponsors. Subject to availability of funds, the passage cost may be met by the Government of India provided the candidate is eligible under the rules.

NOTE : (i) Candidates with equivalent foreign qualifications will be considered; (ii) Where Grades are awarded. the Conversion formula of the University/Institution must be indicated, (iii) Only candidates with 60% marks and above at the level of minimum qualifications as prescribed above, are eligible; (iv) Applications of candidates, who are abroad will not be considered; (v) Employed persons must send his/her application, through his/her employers with 'NO OBJECTION CERTIFICATE' in time failing which application shall not be considered; (vi) Candidate should have adequate knowledge of geographical situation, Culture & Heritage of India and Netherlands; (vii) Candidates who have already been abroad for study/research/training either on a scholarship or on their own are eligible to apply, only if they have been in India for at least three consecutive years after return from abroad; (viii) The application form should accompany a crossed postal order of Rs. 5/- (and rupee one and paise twenty five only in case of Scheduled Caste/Scheduled Tribe & other backward classes) payable to the Secretary, Ministry of Human Resource Development (Deptt. of Education), New Delhi; (ix) Applications which do not contain postal order will be considered incomplete and not be considered; (x) Application in the subject-field other than those specified above will not be considered ; and (xi) Candidates who do not possess the requisite qualifications need not apply. Application with incomplete documents will not be considered; (xiii) Canvassing in any form will be disqualified. **APPLICATIONS RECEIVED LATE WILL NOT BE ENTERTAINED.**

FORMAT OF APPLICATION

A recent
Passport size
Photograph

1. Name of the Scholarship Scheme
2. (a) Subject (b) Sub-subject
3. Name of the candidate (in Block Letters) with full mailing address
4. Father's Name
5. Date of Birth and the State to which the candidate belongs
6. Whether a member of SC/ST or a tribal or aboriginal community, If so give full particulars.
7. Academic record starting from High School/Higher Secondary.

Name of the Board/ University/ Institution	Exam(s) passed	Year of passing	Division/Class with position, if any*	%age of marks obtained & position, if any	Subjects taken

* (In case no Division/Class is awarded and only grading is done, the conversion formula adopted may be mentioned. Exact percentage of marks should also be mentioned. Please attach attested copies/photostat of your academic record alongwith the applications.)

8. Details of professional/practical training and research experience, specifying the pertod and number of papers published, previous employment with the name and date of employment, if any.
9. Nature of the present employment with date of appointment, designation and the name and address of the employers.
10. Have you been abroad ? If so, give full particulars of the country and the period. Also mention the date of return to India.
11. Proposed programme of study/research/training specifying : (i) the work at present engaged in (ii) future plans prospects after the proposed studies/research (iii) nature and programme of study/research desired (iv) how are these related to the technical or economic development of India.
12. Number and date of Crossed Postal Order of Rupees five (Rupee one and paisa twenty five only in case of SC/ST candidates etc.) attached with the form.

NOTE : Employed persons must send their applications fully sponsored by their employers. However, advance applications complete in all respects will be considered provisionally pending sponsorship by employers. Applications must be sent to the Assistant Educational Advisor, Ministry of Human Resource Development (Department of Education), External Scholarships Division, E.S. 5 Section, Room No. 517, 'B' Wing, Shastri Bhavan, New Delhi-110001 by 20th February, 1989.

Place

Date

(Signature of the Candidate)

davp 88/773

CLASSIFIED ADVERTISEMENTS

NATIONAL METALLURGICAL LABORATORY

Council of Scientific & Industrial Research

JAMSHEDPUR-831007

NML Advertisement No. 1/89

Applications are invited to fill up the following vacancies for Scientists at the National Metallurgical (NML), Jamshedpur-831007 in the grades and disciplines mentioned against each. NML is a leading laboratory of the country, engaged in research in the area of preparation and properties of engineered materials. Its objective is pursuit of excellence in all areas of its research activities and their application for the benefit of the Society. The Laboratory is looking for Scientists with a high academic background, commitment and career goals commensurate with NML's objectives.

Scientists : Category—I

Scientist 'EII/EI', Scientist 'C' in the following areas (sub-areas)

(a) Computer Application in Metallurgy
(Heat & Mass Transfer, Stress Analysis, Modelling of Metallurgical Processes).

(b) Ferrous Process (Iron Ore Reduction, Steel Making)

(c) Materials Evaluation
(Non-Destructive Evaluation, Fatigue and Facture of Materials)

(d) Materials Processing
(Powder Metallurgy, Casting & Solidification Phase Transformation).

(e) Mineral Processing
(Beneficiation of Ores & Minerals).

(f) Corrosion Protection
(Prevention of Metallic Corrosion).

(g) Refractures
(Production & Characterisation of Refractory Materials for Iron/Steel Industry).

(h) Non Ferrous Process
(Extraction & Electrowinning).

Essential Qualifications

First Class Bachelor's Degree in Engineering or First Class M.Sc. in a relevant discipline with R & D experience of six years and twelve years for Scientist 'C' and Scientist 'EII/EI' respectively

Post Graduate Degree in Engineering or Ph.D. in Science with R & D experience of four years and about ten years for Scientist 'C' and Scientist 'EII/EI' respectively.

Desirable Qualifications

Ph.D. Degree in Engineering in the relevant fields, following a first class Bachelor's Degree in Engineering.

OR

Excellent Achievement Record in Research & its applications in relevant areas.

Scientists : Category—II

Scientist 'EII/EI', Scientist 'C' and Scientist 'B' in the following areas (sub-areas)

(a) Technology Utilisation & Planning
(Pertaining to Technology Transfer and Monitoring of activities).

(b) Project Process Engineering
(Pertaining to Metallurgical & Chemical Processes—Scale-up, Design & Fabrications).

(c) Instrumentation & Electronics
(Maintenance of Sophisticated R & D Equipment, such as XRF, XRD, DRS, TEM etc.)

Essential Qualifications

First Class Bachelor's Degree in Engineering in the relevant branch of Engineering with experience of two years, six years and twelve years for Scientist 'B', Scientist 'C' and Scientist 'EII/EI' respectively.

OR

Post Graduate Degree in Engineering (for disciplines a,b,c above or Post Graduate Degree in Management (only for discipline 'A' for Technology Transfer/Planning) for Scientist 'B'. Relevant years of experience for Scientist 'C' and Scientist 'EII/EI' are four years and about ten years respectively.

Desirable Qualification

Post Graduate Degree in Engineering following a first Class Bachelor's Degree in Engineering.

OR

Excellent achievement record in the relevant disciplines.

Scientist: Category—III (Scientist 'EII/EI')

(i) Essential Academic Qualification

(a) First Class Bechelor's Degree in Engineering/ Architecture. Preferably with M.B.A.

OR

(b) M Tech/ME Ph D or equivalent Post Graduate Degree in Industrial Design, preferably with M B A./Diploma/Degree in Mass Communication.

(ii) Experience

Should have flair for writing Scientific & Technical articles with twelve years and ten years experience preferably for 'a' and 'b' above) in editing, publication and production of periodicals journals technical brochures and making of video films/models/exhibits/posters.

Job Requirements

1. Preparation and production of Annual Reports, NML Technical Journals, NML New Letters, Technical Brochures/Leaflets.

2. Projection of R&D work and publicity through Press/Radio/TV/Video films/models/exhibits/Posters.

3. Preparation and production of video films describing the laboratory's project activities.

The selected candidate will have to take charge of the publication, Photography and Printing Section at NML.

Scales of Pay of the Various Grades

Scientist EII—Rs. 4500-150-5700
Scientist EI—Rs. 3700-125-4700-150-5000
Scientist C—Rs. 3000-100-3500-125-4500
Scientist B—Rs. 2200-75-2800-EB-100-4000

Number of Posts in Category I, II & III

Scientist EI/EII—6 Posts
Scientist C —4 Posts
Scientist B —3 Posts

Number of posts indicated at each level is only a tentative figure and is subject to change.

General Information

1. All posts carry usual allowances as admissible under the Central Government rules.

2. Upto 5 advance increments could be recommended by the Selection Committee for candidates with truly exceptional credentials and performance. Relaxation of experience in exceptionally bright cases is allowed.

3. Application form for all posts are obtainable by post (Free of cost) from the Administrative Officer, National Metallurgical Laboratory, Jamshedpur-831007, by sending self-addressed and stamped envelope (Rs. 1.80 paise) of 28×13 cm on or before 28th February '89. Completed application forms together with non-refundable application fee of Rs. 8.00 (Rs. 2.00 for Scheduled Caste/Scheduled Tribe candidates) in the form of a **Demand Draft on the State Bank of India, NML Branch, Jamshedpur, drawn in favour of the Director, National Metallurgical Laboratory, Jamshedpur,** alongwith attested copies of certificates/testimonial etc., should reach the Director, National Metallurgical Laboratory, Jamshedpur-831007, on or before 15th March 1989.

4. Candidates applying for more than one post should submit separate applications alongwith the prescribed application fee specifying number of Advertisement and post applied for.

5. Incomplete applications and those received after the last date will not be considered

INDIAN COUNCIL OF MEDICAL RESEARCH

INTERNATIONAL RESEARCH FELLOWSHIPS OF NATIONAL INSTITUTES OF HEALTH (U.S.A.)

Applications (on prescribed form) are invited from candidates for award of International Research Fellowships of the National Institutes of Health, U.S.A. for specialised training in that country.

Eligibility Requirements

To be eligible for an International Research Fellowship, an applicant must :

1. hold an earned doctoral degree (Ph. D., M.D., D.O., D.D.S., D.V.M., O.D., D.P.M., Sc.D., Eng. D., Dr. P.H. or D.N.S.) or the equivalent in a health science field at the time of submission of an application to the Nominating Committee;
2. have earned the doctoral degree within 10 years of the application receipt date (should have received their doctoral degrees on August 1, 1979 or thereafter);
3. have demonstrated the ability to engage in independent basic or clinical research;
4. submit a research proposal in an area of one of the biomedical or behavioral sciences;
5. have a sponsor in the United States at a non profit institution who has agreed to accept the applicant for research on the applicant's proposed project;
6. have assurance from a non profit institution in the home country that there is a position to which the applicant can return after completion of the fellowship;
7. be proficient in spoken and written English.

Application forms and details of the fellowship can be obtained from the Director General, Indian Council of Medical Research, (Division of B.M.S.), Ansari Nagar, Post Box No. 4508, New Delhi-110029. The last date for receipt of completed application form by ICMR is **2nd March, 1989.** Applications received after the closing date will not be considered.

AGRICULTURAL SCIENTISTS RECRUITMENT BOARD

KRISHI ANUSANDHAN BHAVAN, PUSA, NEW DELHI-110 012

CORRIGENDUM

Reference advt. No. davp 1020(8) 87 published in this paper on **January 18, 1988** regarding recruitment, of various posts. The following amendments may be noted against item No. 29 for the post of Manager Technical (Experimental Spinning & Weaving Mill) T-7 (workshop staff) at J.T.R.L. Calcutta.

Essential Qualifications : (1) Three years Diploma in Jute or Textiles/ Bachelor's degree in Jute or Textiles. (2) Five Year's experience in Mechanical processing of Textile Fibres or in Jute Weaving/Spinning.

The last date for receipt of applications in ASRB is extended upto **20-3-1989.**

Those who have already applied need not apply again. The other contents remain unchanged.

davp 1020(18) 88

TATA INSTITUTE OF SOCIAL SCIENCES

DEONAR, BOMBAY 400 088

No. Admn./Advt./89

Dated : February 2, 1989

Applications are invited for the following posts. The prescribed application form, along with the details of qualifications, experience, etc., prescribed for each post, should be obtained from the above address, either in person or by post, by sending an application for the same, along with a stamped (Rs. 2.00) self-addressed envelope superscribed "Request for Application Form for Teaching Posts".

For All Posts

M.A. degree with 55% of the marks or a grade point average of 3.5 under the seven point UGC grade system, or an equivalent degree of a foreign University. Those who do not have the required marks/grades, or the specific field in which the post is advertised, need not apply.

I. **Professor :** (3 posts) in the pay scale of Rs. 4500-150-5700-200-7300+ D.A. and other allowances. **One post in Social Work** having M.A. degree in Social Work; **One post in the Research Unit for Urban Studies** having M.A. degree in **Urban Sociology, Urban Economics or Ur ban/Regional Planning; One post in the Research Unit for Research and Consultancy in Social Policy and Social Welfare Administration** having M.A. degree in **Social Work** (with special interest in Social Welfare Administration or Rural Development), **Sociology or Political Science,** and having **research experience** (designing and implementing research independently required) as also teaching experience.

II. **Reader :** (3 posts) in the pay scale of Rs. 3700-125-4950-150—5700+ D.A. and other allowances. **One post in the Research Unit for Research and Consultancy in Social Policy and Social Welfare Administration,** having M.A. degree in **Social Work** (with either a specialisation in rural development/ social welfare administration or in a generic programme with field work or work/research experience in rural development), **Political Science or Public Administration** (with Developmental Administration); **One post in the Department of Personnel Management and Industrial Relations,** having M.A. degree in **Labour/Industrial Economics; One post in the Research Unit for Rural Studies** having M.A. degree in **Social Work.** The person selected will be stationed at the Institute's Rural Campus in the district of Osmanabad near Tulzapur.

III. **Lecturer :** (6 posts) in the pay scale of Rs. 2200-75-2800-100-4000+ D.A. and other allowances. **One post in the Department of Medical and Psychiatric Social Work,** having M.A. degree in Social Work, with either specialisation in Medical and Psychiatric Social Work or M.A. degree in Social Work in a generic programme with field work or work experience in this field. **The post is reserved for SC candidates.** Applications from general candidates will not be entertained. **One post in the Department of Extra Mural Studies,** having M.A. degree in Social Studies, Social Work, Sociology, or Psychology, and, preferably, Diploma or equivalent qualification or field experience in communication/continuing education / training: **One post in the Research Unit for Rural Studies,** having M.A. degree in Social Work, Anthropology or Rural Development. Field experience and demonstrated interest in rural problems is desirable. **The post is reserved for ST candidates.** However, general candidates are also eligible to apply, who will be considered only if no suitable ST candidates are available for appointment. The vacancy, in that event, will be treated as dereserved and the general candidates, who have applied, will be considered for permanent appointment against the dereserved vacancy: **One post in the Research Unit for Rural Studies** having M.A. degree in Economics with specialisation in Statistics/Econometrics. Candidates should have some background in rural development and agricultural problems in India; **One post in the Research Unit for Urban Studies,** having M.A. degree in Economics, Human Geography or Public Administration. The post is reserved for SC candidates. However, general candidates are also eligible to apply, who will be considered only if no SC candidates are available for appointment. The vacancy, in that event, will be treated as dereserved and the general candidates, who have applied, will be considered for permanent appointment against the dereserved vacancy : **One post in the Research Unit for Child and Youth Research,** having M.A. degree in Economics or Sociology, and, preferably, with experience in research related to children and youth. **The post is reserved for SC candidates.** However, general candidates are also eligible to apply, who will be considered only if no suitable SC candidates are available for appointment. The vacancy, in that event, will be treated as dereserved and the general candidates, who have applied, will be considered for premanent appointment against the dereserved vacancy.

The last date for receipt of filled in application form is **7.3.1989.**

N. Krishnamoorthy
REGISTRAR

PANJAB UNIVERSITY

CHANDIGARH

Advertisement No. 3/89

Applications are invited for the following posts so as to reach the Registrar, Panjab University, Chandigarh alongwith Postal Orders of Rs. 10/- by **7.3.89.** Fourteen days extra time is permissible to persons who have to submit their applications from abroad.

I. **Professors :** (Rs. 4500-150-5700-200-7300).

Anthropology (Physical Anthropology)—1

Geology—1

Zoology (Cell Biology Entomology)-1
Pharmaceutical Sciences—4 (Pharmaceutics—2, Pharmaceutical Chemistry —2)

Chemical Engineering & Technology (Chemical Engg.)—2.

II. **Readers :** (Rs. 3700-125-4950-150-5700)

Chemistry—3 (Physical Chemistry—1, Theoretical Chemistry—1, Inorganic Chemistry—1)
Anthropology (Social Anthropology) —1
Biochemistry—3
Physics—4
Pharmaceutical Sciences—2 (Pharmacology-1, Pharmacognosy—1)
Chemical Engineering & Technology (Chemical Engg.)—2.

III. **Lecturers :** (Rs. 2200-75-2800-100-4000)

Chemistry (Physical Chemistry) (Temporary-Leave vacancy)—1
Geology (Temporary-Leave vacancy) —1
Pharmacutical Sciences—2 (Temporary-Leave vacancy—1 Regular—1, Pharmaceutics).
Chemical Engineering & Technology (Chemical Engg.)—2.

NOTE :

1. The Vice-Chancellor could place before the Selection Committee names of the suitable persons for its consideration alongwith the applications received in response to the advertisement.
2. It is not obligatory on the part of the University to call for interview every candidate who possesses the essential qualifications.
3. The number of vacancies may change.
4. The University may also prepare a panel in order of merit upto 3 persons which shall be valid for a period of six months.

Cyclostyled copies of "Detailed Instructions for candidates", qualifications (essential and desirable), specializations, various allocations and reservations concerning the various posts and other details are separately available with the application form. These can be obtained from the Cashier, Panjab University, Chandigarh personally on payment of Rs. 2/- or by making a written request to the Assistant Registrar (Estt-1), Panjab University, Chandigarh accompanied by self-addressed stamped (worth Rs. 5.40) envelope of 23×10 cms. and Postal Order of Rs. 2/- drawn in favour of the Registrar. Panjab University, Chandigarh.

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Printed by Navchetan Press (P) Ltd. at Navjeevan Printers, 1-E/2, Jhandewalan Extension, New Delhi-110055. Tel. 529157

6-10

University News

MONDAY, FEBRUARY 20, 1989 Rs. 2.50

OCATION
SH KRISHI VISHWAVIDYALAYA

r. N.S. Randhawa, Director General, ICAR delivered the Convocation Address at the fifth Convocation of H.P. Kr
Vishwa Vidyalaya. Seen on his right are Dr. G.C. Negi, Vice-Chancellor and Shri R.C. Kapil, Registrar
of the University. On his left is Shri Sant Ram, Minister of Agriculture, H.P.

The United States Educational Foundation in India

"Fulbright House", 12 Hailey Road, New Delhi-110001

1990 COUNCIL OF INTERNATIONAL PROGRAMS (CIP) GRANTS

Applications are invited upto **April 10, 1989** from professional social workers, youth leaders and those employed in human service institutions for a 120-days or 12-month program of orientation and work experience in the United States, beginning April 1990. Round-trip travel and maintenance in the U.S. will be provided. Selected candidates or their employer will, however, have to contribute $300 as registration fee and program support costs.

An applicant must :

1. be preferably between 23 and 42 years of age on the first day of the calendar year in which application is made;
2. be proficient in English;
3. be a permanent full-time employee on the direct service level in the field of human services; voluntary or honorary workers are not eligible to apply; applicants must return to their present employment after completion of the grant.
4. have a master's degree in Social Work or other professional specialization (e.g., M.A., LL.B., M.Ed.,) from an Indian university or qualifications regarded as equivalent thereto, with at least two years full-time paid experience after the receipt of the professional degree for the following areas :

—Adult Education
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—Alcoholism
—Child Welfare (including adoptions, foster homes, protective services and institutions)
—Community Development, community organization and neighbourhood work
—Drug Abuse Programs
—Family Services (casework, counselling, group work)
—Job and Vocational Training
—Mental Health, community centres, hospitals, mental retardation (Teachers and Social Workers)
—Youth Work

Or

have a bachelor's degree followed by a professional degree (e.g. B.Ed., B.S.W., LL.B., B. Arch., B.Sc., in Home Science, etc.) with at least four years full-time paid experience after the receipt of the professional degree for the following areas :

—Urban Planning
—Criminal Justice (Adult and juvenile corrections, probation, and parole rehabilitation)
—Early Childhood Education
—Family Planning
—Health Care (Social Work, hospitals, clinics, community health program, health education, dietetics, counselling and rehabilitation)
—Legal aid
—Public Law
—Rehabilitation of the Handicapped, Blind, Deaf, Physically Handicapped
—Special Education, Developmentally Disabled, Emotionally Disturbed, Physically Handicapped
—Vocational Rehabilitation.

5. agree to return to India on completion of the program and be ready to work in their agencies at the present salary scale for at least one year and/or on such terms and conditions as required by the agencies;
6. be in India at the time of application and interview.

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Editor :
SUTINDER SINGH

PRICING HIGHER EDUCATION

S. M. Israney*

Recently when there was talk of raising fees by colleges and the University of Bombay, students raised a hue and cry and threatened to go on strike. In fact the issue of charges to students for higher education is a complicated one. It raises far reaching issues of college and university financial wellbeing; of higher education policy, programme and structure; of the students' role in higher education; and of social purpose.

Various complications can be enumerated as under :

Should fees to students be defined as instructional and general, or should other fees such as those for room and board be included ? Should fees cover a particular service, or be considered as general income available to the college or university for any purpose ? Should student fees be fixed at a single price or at varied prices according to the cost of the service received ? This listing of issues could go on and on.

Regardless of the way the problem is stated, the search for an appropriate rationale for decisions on student fees which every college or university must make, is by no means certain of finding a convincing argument. The fact is that, with few exceptions, higher education in developed countries does derive considerable income from student fees. Another fact is that while these charges have tended to rise in developed countries with rising family affluence and with increased demands on the part of college and universities for more income, in India such charges have proportionately remained low.

The subject of fees for higher education shall be considered from the viewpoints of the institution, the students and the society. It would be unrealistic, however, to expect that decisions on these charges will be made on any basis other than one of expediency for atleast some years to come.

Institutional Interest

According to the latest available data on current income of institutions of higher education in India, tuition and other fees provide about 65% of total current income (excluding government grant) of institutions of higher education; income from other private sources such as donations, etc. form about 15%. Although this sort of a gross analysis may be considered as an over simplication of the facts, it indicates, however, that less than 20% of the total non-salary expenditure on higher educational institutions is met by government grants. Out of the total expenditure (salary + non-salary) on higher education, government grants meet about 70 to 75% which shows that higher education in India is very heavily subsidized.

Little progress has been made as yet in India in the analysis of higher education expenditure and income in terms of instructional level : junior college, senior college, master's, professional, doctoral, etc. It is commonly known that there are variations in expenditure requirements according to fields and levels of instruction, but the magnitude of these variations is seldom known. The educational institutions solely depend on grants for payment of salaries of teaching and non-teaching staff which form nearly 70% of the total expenditure. The incidence of lack of funds thus falls entirely on the establishment expenditure, library, gymkhana, etc. Relatively small amounts of income from tuition and other fees are transferred to auxiliary services (possibly to support student health services and inter collegiate athletics) and to student aid. It means very clearly that the grant-amounts are not sufficient and that the institutions are always in demand for more income.

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The Students' Point of View

It may be accepted as axiomatic that students are not enthusiastic about paying the instructional charges of higher education. Until recently, very few persons considered the students' point of view about fees as of any importance. Today, very few persons doubt that the students' point of view will have to be given consideration. But whether the students' point of view will have substantial impact upon the financing of higher education remains quite uncertain.

For one thing, charges to students for instructional service are not a time honoured practice in India, in the context of Guru-shishya relationship. The early colonial colleges, however, depended upon student fees for an important part of their income. For instance the nineteenth century colleges of the young American Republic, Missionary Colleges in India, could not charge the full cost of instruction to their students, because only a limited number could pay the charges then in existence and the colleges competed vigorously for this limited number.

In India central and the state governments began to provide the operating appropriations to higher education which enabled the educational institutions to maintain relatively modest charges to students. The extensive philanthropy from those amassing great individual wealth and a heavy dose of subsidy by the government, kept the instructional charges in India fairly low. In fact even today there is no relationship between the amount of fees paid and the students' ability to pay. For the most part, both public and private universities tend to charge students the same instructional fee regardless of the level of enrolment or the specialised field of study. Sometime the charge to medical students is somewhat higher than to other students, but the charge to graduate students is almost always the same as that to the undergraduate students, regardless of expenditure differences.

Increase in fees has been criticised in recent years in India by some students on the ground that these charges constitute an economic barrier to higher education for youth from low income families. If higher education is the avenue to upward social mobility, then individual ability should be the sole test of meritocratic system of higher education.

It is also pointed out that children of poor families can gain access to higher education only if there is a massive provision of student aid which meets not only all the direct costs of higher education (instructional charges, room and board charges, books costs and transportation) but also compensates the family for the income that the student would have earned if he had been gainfully employed (opportunity cost). This argument however presumes that enough employment opportunities are available in India.

To many other students, increase in instructional charges is an important personal constraints. Such students resent further financial reliance upon their families (which are already taxed by higher prices) at a time when they are seeking to free themselves from parental supervision and to find an identity apart from their families. Moreover, many students today are likely to espouse personal behaviour, ideas, and a life style with which their families are not in sympathy.

The Social Point of View

The social concern with student fees is necessarily a dual one. It involves the social purpose of higher education, and this involves the calculation of means to achieve a determined social purpose. Society is called upon to support higher education in a variety of ways, including philanthropy. It is properly interested in the social purpose of higher education, and this social purpose tends to emphasise the supply of educated talent to the professions of its economy. Moreover the Indian economy has an interest in the instructional, the research and the public service activities of higher education which may contribute to technological development and growth. These social interests find expression in financial assistance to institutions of higher education in order to encourage and ensure the realisation of these social objectives.

The social concern with higher education poses some important policy choices in connection with the determination of the pricing of instructional services. Essentially these choices present two alternatives :

(a) Institutional support which results in relatively modest or even no charges for instructional services to students, or

(b) Forms of financial assistance to students which make certain that no deserving student is deprived access to higher education because of his income status.

In large part, student aid programmes are encouraged within the central and the state governments because of concern for the financial future of privately sponsored colleges. But at issue has also been the question whether affluent families should pay a larger charge of higher education expenses than the low income groups. And equally at issue has been the urgent demand of institutions of higher education for more income. The one and only source of income under the direct control of an institution of higher education is the student fees. All other income depends on the inclination of persons outside the institutions : the executives and legislators private foundation officials, alumni, friends, business corporations, and others.

If higher education is thought of primarily as an individual benefit, then individuals and their families may well be left to make a choice in the use of their financial resources as between intellectual satisfaction and material satisfaction such as housing, television, automobiles and recreation. This is so because, it does seem clear, that the higher the economic status of a family, the more likely are their children to go to college.

If however, higher education is thought of primarily as a social benefit, then society may provide increasing support and make certain that access to higher education is based on merit rather than financial status, that talent is encouraged to seek its fullest potential development, that the activities of educational institutions achieve the ends they are designed to serve, and that they are properly compensated for the contributions made to the productive output of the economy. The social obligation may be met in varied ways, including low charges and financial assistance to students.

Higher education today is an investment in manpower—human capital to such economic investments as land development, the construction of plant facilities, the purchase of equipment, and all the ancillary economic activities from the growth of food and fibre and the extraction of mineral resources to the transportation and distribution of products. But again the emphasis is on the social role of higher education in a complex economy.

MYSORE

To argue against rise in fees is to argue in favour of a reduction in the expenditures of higher education or in favour of an increase in the public support of higher education, either by government or by philanthropists. An argument in favour of a reduction or maintaining the status-quo in higher education expenditures must sooner or later bring students in direct conflict with the interests of faculty members in improving their salaries. This is one conflict that students thus far have been reluctant to encounter.

Recently when the students supported the teachers' strike, it is doubtful whether students looked at the problem from this point of view. To argue in favour of increased public support of higher education is to acknowledge an obligation on the part of students to the existing social structure, which the students are not prepared to accept in India.

It is, therefore, high time in India to recognise that higher education must be made self-supporting by creating on the one hand the sense of dignity of labour, purpose and seriousness among students and, on the other hand, to restrict higher education only to the deserving students. For this, there has to be a proper screening system with emphasis on merit.

TO OUR READERS

Knowledgeable and perceptive as they are, our contributors must not necessarily be allowed to have the last word. It is for you, the readers, to join issues with them. Our columns are as much open to you as to our contributors. Your communications should, however, be brief and to the point.

The Changing Scenario of Education
DISTANCE EDUCATION

Saroj Pandey*

It is said that the destiny of a nation is shaped in its classroom. In the world of today, a world which is founded upon science and technology, it is education alone which determines the level of prosperity, well-being and security of every individual. The success of our endeavours at social development and national reconstruction depends upon the quality of students emerging from our schools. It is education than anything else that can bring people out of the rut of traditionalism, superstition and dogma which are great barriers in the path of national development. It is education that can raise the level of individual consciousness to perceive national goals and aspiration. It also provides knowledge and skills on the one hand and intrinsic & extrinsic motivations on the other to achieve national goals of development. It is education that develops attributes of nationality and planning by influencing such values as security, achievement orientation, universalistic outlook, role specificity and individuality etc. It helps to make national choices, to regulate social transaction and to achieve logical unity of means and ends to obtain a high level of living.

The scrutiny of educational system indicates that our system of education has travelled a long way from vedic period to the modern era of distance education. Education in India as in any other country of the world has always been governed by the needs and norms of the Society. These social demands and norms are reflected in the education of each and every period. Education in pastoral or Vedic age was governed by the desire of getting rid of the cycle of birth and death. Education was meant for only highly motivated learners who were found suitable for education by the 'Guru'. The pupils then lived with the guru as a member of his family and learned through verbal, face-to-face interaction with the guru. But as time passed learner motivation was replaced by the desire of upward social mobility. In feudal India many famous educational institutions such as Nalanda and Takshsila came into existence in which admission was regulated by the entrance tests and not by the subjective assessment of the Guru. These institutions came into existence as a revolt against vedic education system which discriminated its students on the basis of caste and creed. But the essential charateristic of this period too was 'learner-motivation', although desire for upward social mobility began to supersede learner motivation. By the time the Muslims arrived in India most of the ancient institutions became things of the past. Pathshalas and Madrassas played dominant role in educating students through Sanskrit and Preso-Arabic combination. At that time main emphasis was given on religious education because conservation of religion was the prime concern of people. The quality now gave way to quantity and standards began to fall gradually, so were the values, norms, orientations, thinking and living patterns of the society.

This metamorphosis of education reached its climax during colonial period. The Britishers enforced an entirely new system of education which was foreign not only in idea but in content also. The higher spiritual values inculcated among students during vedic and even in feudal India were replaced by materialistic values during this period and educational institutions became commercial places of providing certificates to those who could pay, whether they really deserved or not, and at the cost of developing high mental and spiritual abilities or qualities among students. The quality of education was now replaced by the quantity of education. The aim of emancipation and the mode of higher intellectual, spiritual thinking was replaced by the aim of obtaining a certificate from a formal four walled setup and live a decent life with all worldly comforts and pleasures. Teachers now become the paid servants of government. This system has harmed our educational system than any other educational system.

After independence the government of India tried to make good the damage done by the Britishers and the Constitution declared education as birthright of each and every Citizen of India and provided "equal opportunity to all". Tremendous efforts were made to universalise education irrespective of caste, creed, sex or status of students. But this strategy resulted in a mad rush of students for different courses and quality of education deteriorated further. Getting a certificate became the sole aim of students instead of learner motivation which was the aim of vedic student. Students tried to obtain degrees through fair or foul means. The incidence of fake certificate

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Deptt. of Education, University of Allahabad, Allahabad-211002.

andals, alteration of marks, leakage of question aper, mass copying and falling standards support this onclusion. The prevailing system of education failed iserably because on the one hand it denied education genuinely motivated students and on the other it creased the number of mediocre students with ertificates, which ultimately resulted in increase in nemployment and decrease in the quality and standrd of education day by day.

Distance education seems to provide an answer to hese shortcomings of traditional education. It is system of education which realises the individual ifferences in abilities, capacities and intelligence of tudents and makes them more independents and selfonfident. It helps students to quench their thirst f knowledge on their own and at their own pace. earner Autonomy being the main principle of this ype of education, it develops their self confidence so hat they can face the various constraints of life in nore dynamic manner.

The target of education in our country is the eradication of illiteracy and universalisation of educaion. The rigid formal system of education confined within the four walls of educational institutions does not seem to be adequate to meet these demands. A new strategy based on a revolutionary rethinking and reappraisal of certain educational values has come up on the educational scene as one of the most potent strategies for fulfilling the demands of mass education. The offer that distance education is making is very attractive when its major aim is academic progress with special emphasis on reaching the unreached. It is infact a non traditional and non-conformist approach which is innovative in the sense that it sets aside the methodologies based on the use of traditional oral instructions and uses multimedia approach. It is an outcome of certain historical, social and technological forces and as a system which is firmly related to the social and cultural environment.

Distance education should not be treated as a distant cousin or a poor relation of formal education. Instead it is full fledged non-formal educational system which has its own philosophy, its own goals and its own methodologies. If the formal education has served the society fruitfully, so does the system of distance education hope to do. It intends to supplement the formal education and not to compete with it. It tries to serve those sections of society which are denied formal education either due to being located in remote and far-flung areas or have discontinued their education because of unavoidable circumstances. It also caters to those who want to increase their qualifications and housewives who do not have enough time to join regular institutions.

Because of the efficacy of the distance educational system a majority of the countries in the world have adopted this mode of teaching/learning. Countries like England, U.S.A., U.S.S.R., China, Japan, Phillipines and Africa have improved their educational percentage at the tertiary level of education by using distance education system successfully. This system of education is gaining rapid strides in India also as a new trend in instructional technique. But we are still far from the goals. In many a developed country right from first degree to special and professional education like medicine and technology, courses are being offered through open learinng systems. In India though professional courses like Education are being offered through distance teaching but courses like medicine and engineering through distance teaching are yet to be designed. In fact the system of distance education is a new born child to India and it has to travel a long way to achieve its goals.

The essential feature of distance education is that teaching acts are separated in time and place from the learning acts and utilisation of various media of communication. The most common among these are printed materials. In the words of Holmberg, "By far the most important medium in distance education courses is the printed word. This applies to conventional correspondence study, as well as to highly sophisticated multi-media, presentations like courses of the open university" (Holmberg, 1985, 62). Radio is another media which is very practicable instrument for adult education. Even in countries like India, it is easily accessible for the learner and can add a personal touch by bringing in the voice of the tutor. Audio. Cassettes can be played and stopped by the student himself as and when he needs its help. T.V., C.T.V., satellite, computers and face to face sessions make teaching more flexible and interesting than traditional face to face teaching.

The critics of distance education system often say that this education system will fail miserably in developing group feeling and sociatization among students as it is highly individualised system of education and one student seldom knows about the other student. But this feeling is not true because on the one hand this system relieves an on campus learner from the tyranny of inapproprite face-to-face teaching. on the other it provides learning opportunities in one's own familiar situation and helps him in building up

(*Continued on page 7*)

AUTONOMOUS COLLEGES

Role of Teachers and Principals

J.N. Kapur*

Autonomy means freedom and freedom means responsibility. The success of an autonomous college depends upon the willingness of the teachers and the principal to assume responsibility for the academic life of the college. It depends upon their desire for academic excellence and their ambition to contribute to high standards of education in the country.

The principal has to be an inspired person with a sense of mission. He should be able to inspire his collegues and in turn ready to be inspired by the enthusiasm and zeal of his colleagues. Though the principal has a keyrole, the role of the teachers is even more important and crucial.

Most of teachers in an affiliating university have a passive role to play. They have to teach the courses, in the framing of which they have no role. Their students are examined by examiners who do not know how these students were taught. Their teaching becomes routine and mechanical and they miss the real excitement of teaching. They miss the opportunities to be innovative and creative and of playing an active role in shaping the careers of their students. They feel frustrated and alienated from the system of which they should be the main priests.

Autonomy offers a way out. It offers a way where every teacher can play an active role in the educational process.

The heart of an autonomous college should be an internal examination system, where the teacher of a course should be the examiner of the course. There should be continuous assessment through quizzes, mid-term tests and written projects requiring extensive use of the library. However the more important aspect is the openness of the examination system. Students should have the right to discuss their answers with the teacher and convince the teacher or be convinced by him. They should have the right to see even others' answer books and projects. In case of difference of opinion, they should have the right to appeal.

The grading system should be adopted so that the teacher gives the grades and the students are arranged in order of merit in each course. In this case, every student has a vested interest in the fairness of the examination and because of the openness of the system, the teachers are under no pressure to be unfair.

In the framing of the courses, all the teachers should have an active role. In fact the teachers should propose the courses and the university should only see that these courses are not inferior to those proposed in non-autonomous colleges. However some of these can be different and should give scope for innovation and freedom in teaching.

An autonomous college has to be a democratic institution where the principal is the academic leader of the academic community, where his authority comes from his deep and unflinching loyalty to high academic standards. Here every teacher has also to take an oath of fairness, impartiality and integrity. He has to be explicitly committed to highest moral and ethical principles and ideals. Every teacher has to fight with great zeal all the tendencies for unfairness and lowering of standards.

In an autonomous college every teacher is committed to excellence in teaching and as such is anxious to have a feedback from his students through student reaction surveys.

There has to be an enormous effort to develop mutual trust among students, among teachers and between students and teachers. The objectives of impartiality, integrity and fairness have to be pursued ruthlessly and without any exception whatsoever. One rotten fish can spoil a pond and one unscrupulous person can spoil a system unless others are completely vigilant.

Freedom always demands a price and so does autonomy. Once teachers and principals are prepared to pay the price, they will have a life of dedication, fulfilment and purpose.

It is often argued that the environment of nepotism and corruption can vitiate the concept of autonomy. However if the teachers are ready to stand

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Jawaharlal Nehru University, New Delhi-110067 united like a rock, unflinching in their loyalty to impartiality and high standards, they can resist all political pressures. In fact each autonomous college can be a centre for the rejuvination of all walks of our national life.

Since all corruption has its origin in secrecy, autonomous colleges should opt for a completely open system. Since any system is good only if everybody feels a participant, an autonomous college should opt for complete involvement of all students and teachers. Since our nation needs excellently trained manpower, autonomous colleges should opt for international standards.

Since education thrives in an academic climate, every autonomous college should opt for creating an academic climate in which every student shall be excited by the explosion of knowledge, every teacher will be an adventurous explorer and every parent will be willing to learn from womb to tomb.

Autonomous colleges are not for timid people. They are for those who have the courage to work for intellectual renaissance in India. □

The Changing Scenario of Education

(Continued from page 5)

through self-directed learntng, the maturity which characterizes an educated person. The advantages of this mode of teaching are that the student will be able to work on his own pace, will be able to choose his own educational goals and will utilise his resources to the maximum to attain these goals. But no system of distance education, however, well planned and well organised, can succeed in the absence of adequate student support services. These services include study centres for the success of any distance education programme. A network of public libraries is a precondition for the success of any distance education programme. It is hoped that a well planned strategy of distance education based on maximum utilisation of mass media would ensure the removal of some of the imbalances which are eating into the vitals of Indian education. It is not merely an innovation but a pragmatic approach of extending education to the millions of people for whom the word "School' would remain a distant dream for years to come. This approach does not bring all these people to the School, instead takes the school to wherever they are and wherever they work. This system may help the educators of India to realise the goals of universalization and democratization of education as mentioned in the Constitution and raise the quality of education.

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DIRECTIONS FOR GROWTH OF AGRICULTURE IN HP

Delivering his address at the Fifth Convocation of the Himachal Pradesh Krishi Vishwa Vidyalaya, Palampur, Himachal Pradesh on January 17, 1989, Dr. N.S. Randhawa, Director General, ICAR and Secretary, DARE, highlighted the future directions of growth for Agriculture and Animal Husbandry in Himachal Pradesh. Excerpts...

A convocation is an important event in every university. But these events, however important, tend to be mechanistic unless we consciously invest meaning into them. The convocation represents the beginning of a new and significant phase in the life of the young persons which is full of zeal, enthusiasm and above all challenges in their future careers and profession.

The aim of education is not only to acquire knowledge but transmit it to others for social benefit. I hope, the young graduates who are passing out today will extend the knowledge gathered by them at this university to the farmers for improving their quality of life.

Challenges and Opportunities

In India, agricultural scientists have demonstrated their skills and capabilities in generating appropriate technologies through which the food production in the country has significantly increased. But, most of the efforts of the scientific community had been concentrated on areas which are better endowed and on crops grown in the favourable environments having irrigation facilities. The agroclimatic, socio-economic and ecological conditions of hill region are quite different compared with these favourable situations. Special efforts are needed to improve foodgrain production which seems to have stabilized around one million tonne in Himachal Pradesh. Conservation of the hill eco-system attains special significance because it is not only essential for sustainable agriculture in Himachal Pradesh but it is basic to sustain the gains thus far achieved in Punjab and Haryana, referred to as the 'bread baskets' of India.

The northern hill region of the country can be broadly divided into two distinct groups viz. (a) north-western region and (b) north-eastern region. In the first region, there are four State Agricultural Universities, viz. Himachal Pradesh Krishi Vishwa Vidyalaya, Palampur; Dr. Y.S. Parmar University of Horticulture and Forestry, Solan; G.B. Pant University of Agriculture and Technology, Pantnagar; and Sher-e-Kashmir University of Agricultural Sciences and Technology, Srinagar. There are also a few ICAR Institutes with mandates for Hill Agriculture, Temperate Horticulture and Cold Water Fisheries. However, the North-Eastern Hills region is less fortunate and is serviced only by the ICAR Research Complex for the NEH region with modest research infrastructure and professional staff to service the needs of the constituent states of this region. Our endeavour in this region should be to develop farming enterprises which can cash on the natural endowments unique to the hill eco-system. It would demand a shift to the land-use systems which are economically competitive and ecologically sound.

The Himachal Pradesh Krishi Vishwa Vidyalaya, since its establishment in November 1978, has been doing a commendable job to solve the agricultural problems of Himachal Pradesh, which has a substantial tribal population and where the terrain and system of farming are quite different from those prevailing in the neighbouring states. The scientific input has helped to improve the socio-economic conditions of farmers of this region. But still there are many challenges which demand the attention of the agricultural faculty of this university. The future successes will be determined by the quality of training and manpower. I hope the faculty is reorienting its teaching, research and extension education strategies to meet these challenges.

This State established the second university at Solan in 1985 with a special focus on horticulture and forestry. Both these universities have the area jurisdiction of the entire state in their respective fields of activities. I would urge that both these universities should take into stock the available resources and coordinate in a manner to avoid duplication of efforts to achieve maximum benefit from the scarce and competing resources.

Agricultural Scenario

The agricultural scenario of Himachal Pradesh at the time of attaining the statehood in 1966 was quite different from the present one. Since then it has made considerable progress in terms of the area under high yielding varieties, irrigation and the use of inputs like fertilizer. The area under irrigation has increased from 16.90 per cent in 1966-67 to 20 per cent in 1987-88. Similarly, the use of fertilizer has also increased from 4.55 kg nutrients/ha to 25.6 nutrients/ha. The cropping pattern has changed in favour of wheat, vegetables and potatoes. The foodgrain production in Himachal Pradesh seems to have stabilized around 1.00 million tonnes from an arable area of 0.85 million ha which should be a cause of concern to the agricultural scientists and the development officers in this state. I am sure, an appropriate coordination between the scientists and those working in the State Development Departments will raise the threshold of foodgrain production.

The economy of hill areas is closely related to the production of fruits and vegetables. In the recent past, the area under fruits has increased in Himachal Pradesh from 792 hectares in 1950-51 to 1.35 lakh hectares during 1986-87. The production of fruits has also increased from 1200 tonnes during 1950-51 to 4.00 lakh tonnes in 1986-87. The apple is the major fruit crop grown in about 53000 hectares which is 38 per cent of the total area under fruits in the State. The performance in horticulture, particularly apple, has received national appreciation. I hope the establishment of the second university with a sole mandate for horticulture will help us to achieve not only a higher threshold of productivity but will also promote by product diversification through researches in the area of post-harvest technologies relevant to fruits and vegetables.

The forest constitutes an important natural resource of Himachal Pradesh. The world today is passing through environmental crisis. We need to harness the research and development activities in a manner that these will eliminate the over-exploitation of these natural resources. In this regard also the special burden lies on the recently established Dr. Y.S. Parmar University of Horticulture and Forestry.

The improvement of livestock population and milk production in the State has made some progress but there is a considerable scope for further improvement. The number of breedable cows and buffaloes in Himachal Pradesh according to 1981 census are 0.681 and 0.383 million, respectively, which yield 0.445 million tonnes of milk. This works out to the availability of 200 gms. of milk per caput per day in comparison to the national average of around 160 gms. per caput per day. In this context, establishment of a College of Veterinary Sciences under Himachal Pradesh Krishi Vishwa Vidyalaya is a significant step. I am sure this college with the adequate support of the State Government would be able to bring about an increase in the animal wealth of Himachal Predesh.

Watershed Management

Except for the cold desert region, the rest of Himachal Pradesh falls in the medium to high rainfall zones. Most of this water overflows through mountains and undulating terrains carrying large silt loads during the rainy season. This is one of the important factors of ecological disequilibrium and low productivity of this area. The University has been operating an All-India Coordinated Project on Water Management for high rainfall in hilly areas for more than 15 years. It has generated very useful technologies. On the basis of this research information, there is a need to take up watershed management pilot projects in the production catchments of the farmer's holdings. This will not only improve the soil moisture regime of Himachal Pradesh soils but would also lead to better water resources management in the adjoining states of Punjab and Haryana. The university may think of strengthening the research in this area and may also take up at least one model watershed pilot project in each of its agro-climatic zone in collaboration with the Department of Agriculture.

Integrated Nutrient Management

There is also a need to initiate and strengthen research efforts in nutrient management. As earlier indicated, the nutrient consumption in Himachal Pradesh has increased more than five times during the last 20 years. However it is still just half of the national average consumption of nutrients. Micronutrient deficiencies in the soils of Himachal Pradesh are known to exist for more than three decades. The soils of Himachal Pradesh are expected to be low in phosphorus, and in spite of it the N : P ratio of the fertilizer consumption continues to be wide. Integrated nutrient management will demand the constitution of multi-disciplinary teams of devoted scientists involving soil microbiologists, plant scientists (geneticists and physiologists), agronomists and social scientists.

In view of rising costs of chemical fertilizers, the University may take up some studies on nutrient economy through the use of organic manures and judicious recycling of available organic sources, such as farm yard manure, compost, biogas slurry, sewage-sludge and green manures. The integrated nutrient management package should also include biofertilizers. Efforts should be made to identify effective and efficient strains for different cropping patterns and eco-zones in the state.

Soil Resource Inventory

Based on detailed study of morphological and physio-chemical characteristics of 63 typical soil profiles spread all over the four agro-climatic zones of the state a soil map of the State has been prepared. These soils differ widely in their mode of formation and profile characteristics and represent 5 orders and 22 sub-groups. These benchmark soils can be an important resource base for agrotechnology transfer and also for reorientation of research programmes for better interpretation of research information specific to each identified soil unit.

Agro-Climatic Regions of Himachal Pradesh

Depending upon altitude and climatological parameters, the State has been divided into four zones viz. (1) Sub-mountaneous and low hills subtropical; (2) Mid hills sub-humid, (3) High hills temperate wet, and (4) High hills temperate dry. The regions in the foot hills and mid hills experience high rainfall and low to moderate temperatures whereas the cold desert areas suffer from low precipitation which is mostly in the form of snow.

Keeping the need and priorities of the above regions, after a great deal of discussions, deliberations and in-depth studies, the ICAR in collaboration with the State universities and the State Government have established and strengthened 18 Regional Research Stations and sub-stations under the National Agricultural Research Project of the ICAR for conducting location-specific research, training and extension education programmes. There may be need for further strengthening of these sub-projects. The ICAR will be very happy to consider such proposals from your university.

Temperate Animal Husbandry

Our Prime Minister has been drawing our attention to the reorientation of our land use planning in a manner that it can cash on the natural endowments of each ecosystem in the country. The northern temperate region is endowed with large livestock population which contributes to the economy of the region through animal protein, fibre, skins and manure. Because of the topography and size of cultivated fields, most of the farm power and transport is dependent upon draft animals. Equines, especially ponies and mules, play an important role in civil and defence transport, more particularly at high altitudes. This region has unique species, viz. yak, mithun and pashmina goats producing the finest and the warmest fibre. Livestock rearing is very important because it not only meets the local needs for meat and animal fibre, but also supports a large industry based on fur, skins and animal fibres producing shawls and other hand-woven products. In spite of the importance of livestock in this region, temperate animal production has not received the same emphasis as in tropical and sub-tropical areas. Considering the most salubrious environment, the region can sustain high-producing temperate breeds. The major limitation is the feed and infrastructure for providing health and breeding inputs. The region can at least support the maintenance and production of exotic germplasm of different livestock species being utilised in genetic improvement programmes in this and other regions.

The ICAR has been supporting the research programmes for livestock improvement earlier through Departments of Animal Husbandry and now through the State Agricultural Universities and its own Institutes. In addition to the N.E.H. Research Complex, it has centres of the IVRI in Jammu & Kashmir and Himachal Pradesh, fur animal breeding division of the Central Sheep and Wool Research Institute, and the National Research Centres on Yak and Mithun.

Research programmes on improving sheep for fine wool have led to the formulation of breeding strategies, and their large-scale implementation has resulted in more than 50% of sheep population being converted into high-producing fine-wool sheep. Kashmir Merino, a new fine-wool sheep breed, has been evolved. There has been an effort in improvement of Pashmina production and quality by crossing of low pashmina producing goats with Angora, which have been observed to improve fibre production. The crossing with Jersey has shown large improvement in milk, but the limitation in exploiting their genetic potential is the lack of adequate feed resources. Palampur was perhaps the earliest place where the ICAR had instituted cross-breeding with Jersey, and it is now implementing an Indo-New Zealand project on cross-breeding with Jersey. It will be necessary to take up inter-breeding of cross-breds and their selection for further improving milk production.

Rabbitry for meat, fur, skins and wool has caught up with the farmers in Himachal Pradesh. It provides supplementary income through backyard farming with only small investment. The angora wool blended with fibre (sheep) wool can be handspun into fine yarn and woven into scarfs and shawls. Rabbits are not only as efficient as poultry broilers in meat production but also provide fur and skin, and can be reared on more fibrous feeds. An Angora rabbit can produce around 800 g. of wool with a net return of Rs. 300-400.

Parasite diseases are important causes of reduced production. The IVRI centre in Jammu & Kashmir has produced irradiated lungworm vaccine to reduce the incidence of verminous pneumonia. Mineral deficiencies and poisoning due to weeds are also serious problems in the region which need research attention.

The Himalayan eco-system is facing accelerated degradation and we are receiving reports about serious decline in productivity of alpine pastures. There is a need to study the vegetation resources in the alpine region, their nutritive value and carrying capacity, problems of protection and judicious utilisation. The alpine species of grass, legumes, forages etc., which are likely to become extinct due to overgrazing, need to be conserved and their seed utilised for reseeding. Aerial reseeding and adequate fertilizer application would be required for revegetation of hills which have been denuded. In the forest and horticulture areas, shade-loving grasses and legumes can be exploited on the mixed-cropping systems to augment our feed resources. In terraced fields, leguminous fodders can be planted on the risers which also help in soil binding. Fodder trees can play an important role in providing feed for livestock, especially during winter. More studies on the nutritive value and incriminating agents in tree leaves need to be carried out.

Emphasis on Need Based Education and Training

University education should ensure the all round balanced development of the mind, the body and the spirit of every individual student. Education should infuse the necessary self-help skills leading to self-reliance, subject-skills, social and group skills and ethical and moral skills. Good education is dependent upon a good teacher, who is not only an inspirer and promoter of all the noble qualities among the students, but he is also a good friend, philosopher and guide. I have no doubt that the outstanding faculty and hard-working students of this Hill University measure upto above aspirations.

As already mentioned this region has a great potential for development of temperate animal husbandry programmes. Therefore, the decision to start a college of veterinary science is most appropriate, which will help to develop the manpower in this sector of agriculture. This college needs an adequate support from the State Government. Once an academic institution is started, it is the responsibility of the State or University to provide required facilities of resources, persons and infrastructure for ensuring quality training of the students. I have been informed that this college needs special assistance to achieve the desired standards to turn out good clinicians.

The Council would support these programmes in the next Plan period. But the blessings from the State Government would be absolutely essential. The Council has earmarked Rs. 134.60 lakhs to this univetsity during VII Plan for infrastructural development. On account of inadequate funding of agricultural education and research system of the country, the university development grant has been gradually shrinking during the last 10 years. We will endeavour to augment the same in the coming years.

There is a need to establish and strengthen the academic programmes in the emerging new disciplines like Biotechnology, Post-harvest Technology, Agricultural Meteorology, Educational Technology, Energy Management, etc. These are necessary to bring relevance to agricultural education to meet the need of the hour. The Council would make sincere efforts to assist the agricultural universities in starting these programmes during VIII Plan.

The Council has decided to assist the agricultural universities towards implementation of revised UGC pay scales. I commend the Himachal Pradesh Government for taking the timely decision to implement these scales. You would be happy to know that the Council has already released Rs. 24.00 lakhs recently to your university to meet the Government of India 80% share towards the additional liability in respect of the implementation of revised UGC pay scale.

Agricultural Education is a dynamic process and the 'culture' in agriculture needs to be more dynamic and goal-oriented. The training should adequately prepare the professional for keeping ahead of the emerging problems and equip them to provide expeditious and effective solution to these problems. Obviously, this requires training and retraining. The test of training is its applicability, transferability and replicability at the grassroot level with a multiplier effect. I hope, this university is giving adequate emphasis to this aspect. The programme undertaken through "Agro-vocational training school-cum-extension training service" by the university is a right step in that direction.

You have two Krishi Vigyan Kendras and also undertaken many extension education activities through Directorate of Extension and Communication Centre. A good university is known for its efforts in transfer of technology and in bridging the gap between "technology-generation and its ultimate absorption" by the target beneficiaries, with no loss of time. Closer interaction with the development departments, input and credit institutions along with integration of activities at the grassroot level is a sine-quo-non of prosperity of the State in general and the influence area in particular.

Role of Women in Agriculture

You may be aware that our Prime Minister, Shri Rajiv Gandhi, inaugurated an International Conference on Farm-Women in Agriculture in December, 1988. He emphasised that Home Science and Agricultural Research Institutions should support the generation of appropriate agricultural and homestead technologies and develop strong feed-back relationship. Home Science training should accord high priority to women's role as a producer of wealth. There is particularly an urgent need for an integrated action by home scientists and agricultural scientists both at the point of generating knowledge as well as delivery of the knowledge. The conference has come out with a set of excellent recommendations which can go a long way in reinforcing the role of women in agriculture. In the ultimate analysis, the gender discrimination, whether in farm or factory or in science or society, will end only when we all strive for sustainable happiness of all human beings; whether male or female, it should become central to the ethos of human culture. Nurturing the growth of such an ethos is the principle challenge before the leaders in science and society. The Department of Home Science to offer degree programmes was established in the HPKVV about a decade back but somehow it has not taken off the ground. It can play an important role in promoting programmes enumerated in thd preceding paragraphs. I woule request the Vice-Chancellor to examine the possibility of strengthening this institution so that Home Scientists can play their role in improving the quality of life of rural homes in the hilly regions. □

COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH

CSIR RECOGNISES GATE

CSIR has recognised GATE examination as equivalent to national test for the purpose of appointment of Junior Research Fellows in CSIR sponsored schemes/Directors' quota.

BIRLA INSTITUTE OF TECHNOLOGY

MESRA : RANCHI

(A DEEMED TO BE UNIVERSITY)

ADMISSIONS-1989

Bachelor of Engineering and B. Pharm. (4-Year) Degree Course

Entrance Examination for admission to (1) Bachelor of Engineering (4-Year) Degree course in Civil, Electrical & Electronics, Mechanical, Electronics & Communication, Computers and Production Engineering, and (2) B. Pharm. (4-Year) Degree course in Pharmaceutical Sciences will be held on May 27th and 28th 1989 at the following centres :

Agra, Ahmedabad, Allahabad, Bangalore, Bareilly, Bhagalpur, Bhopal, Bhubaneswar, Bombay, Calcutta, Chandigarh, Delhi, Gauhati, Gaya, Ghaziabad, Gorakhpur, Hyderabad, Jaipur, Jamshedpur, Lucknow, Madras, Muzaffarpur, Patna, Ranchi, Sindri, Trivandrum and Vijayawada.

Provided sufficient number of candidates opt for the proposed centres.

Qualifications

For Bachelor of Engg. : I.Sc., or 10+2 or equivalent examination with Physics, Chemistry and Mathematics; for B. Pharm. with Physics, Chemistry and Biology. Maximum age limit 21 years on 1st October. THOSE APPEARING THIS YEAR AT THE QUALIFYING EXAMINATION ARE ALSO ELIGIBLE TO APPLY.

(22½% Seats are reserved for SC/ST cendidates.

The last date for receipt of completed application form is **10.4.1989**.

Application form can be obtained by post on pre-payment of Rs. 25/- by crossed Postal Order, payable to the Registrar. Birla Institute of Technology, Mesra, Ranchi. The request should accompany a self addressed and stamped envelope of size 26 cm. x 12 cm. bearing Postage stamps of Rs. 1.80 p. clearly mentioning the form required i.e. Bachelor of Engg. or B. Pharm.—as the case may be.

J.B. Saksena
REGISTRAR & OSO

XI Indian Botanical Conference

Eleventh Annual Conference of the Indian Botanical Society was recently held at the Bharathidasan University.

The conference was inaugurated by His Excellency the Governor-Chancellor Dr. P.C. Alexander. In his inaugural address the Governor expressed deep concern about the steady decline in land under forest cover and stressed the importance of preservation of the environment. He also indicated the availability of a vast coast line for judicious exploitation.

Dr. K.S. Bilgrami, President of the Indian Botanical Society, in his presidential address outlined the importance of biomonitoring of the river systems in our country and requested the botanists of Tamil Nadu to take up cleaning of the river Cauvery with the help of the Directorate of Ganga action plan. Dr. S. Muthukumaran, Vice-Chancellor welcomed the delegates and highlighted the achievements of the University.

Distinguished botanists were awarded medals during the conference. Birbal Sahni Medal was awarded to Prof. S.K. Sinha, Professor of Eminence and Head, Water Technology Division, Indian Agricultural Research Institute, New Delhi. He delivered an award lecture titled, "Journey from Botany to Agriculture" on various mechanisms of drought resistance and water economy. The Panchanan Meheswari Medal was awarded to Dr. R.P. Singh of the National Botanical Research Institute Lucknow. In his medal award lecture "Marvels of Seed" Dr. Singh dealt with different anatomical and morphological aspects of seed architecture. The Vishwambhar Puri Medal was awarded to Prof. R.M. Pai, Head, Dept. of Botany, Marathwada University, Aurangabad. He delivered a medal award lecture on "The Floral Morphology of Musaceae". Prof. Y.S. Murthy award was given to Dr. A.K. Roy of Bhagalpur University, who delivered the medal award lecture on the "Threat to medicinal plants and plant drugs by fungi".

350 participants were registered for the conference. They were from all parts of the country extending from Srinagar and Jammu in the North, Sikkim in northeast, Shillong in east, Ahmedabad in the west and Nagercoil in the south.

404 research papers on different aspects of plant sciences were presented in 15 different sessions. Twenty nine research papers were presented at the conference by the research workers of the host department. On all the three days of the conference there were four parallel sessions. A noteworthy feature of the conference was that, many of the research papers were presented by young scientists below the age of 30. Twenty four of these were awarded certificates of merit for their presentation and three of them were awarded, additionally, cash prizes. Of these, six certificates of merit were won by research fellows of the Department of Botany, Bharathidasan University five by Bhagalpur University, three by University of Rajasthan, two each by Madras and Jammu Universities and one each by Karnatak, Allahabad, Madurai, Warangal, Srinagar and Pondicherry Universities. Of the 3 cash prizes, two were won by the University of Jammu and one by the Bharathidasan University.

A special lecture on "Heat shock responses and mechanism of stress tolerance in plants" by Dr. A. Gnanam, Vice-Chancellor, University of Madras was the highlight of the conference.

A souvenir with scientific articles from leading academicians and with information about the University department as well as affiliated colleges in Tirudhirapalli was published to mark the occasion.

The valedictory function was presided over by Dr. S. Muthukumaran, Vice-Chancellor, Bharathidasan University while Dr. K.M. Marimuthu, Vice-Chancellor, Bharathiar University was the chief guest. Dr. Marimuthu recalled his rich experiences in the laboratories of U.S.A. and enthused botanists to make the study and research in Botany more exciting and meaningful.

It has been decided to hold the next annual session in December 1989 at Nagpur, Prof. (Mrs.) Archana Sharma of Calcutta University was elected as the next President and Prof. G.R. Rao of the Bharathidasan University as the Vice-President. Prof. Dalbir Singh of Rajasthan University continues as Secretary.

Books in Changing Society

A symposium on 'Books and their Importance' sponsored by the National Book Trust, was organised by the Kakatiya University on 7 February 1989 to mark the National Book Week.

In his presidential address Prof. Jafar Nizam, Vice-Chancellor of the university, referring to the enrichment of life by books, said that a great book would transform man individually, society as a whole and the world for generations. There was always inspiration from a great book for every innovation and revolutionary movement in the human history.

Prof. Nizam also referred to the scientific and technological advancement that has radically transformed the library facilities and documentation services. In future, one would be in a position to carry the whole library in a small brief case because of the computerised chip system, he added.

The Vice-Chancellor called upon the staff and the students to dedicate themselves whole-heartedly to equip themselves with the latest advancement in their chosen field in order to serve the society more fruitfully. He complimented the library staff for organising the symposium and also the book exhibition along with it.

Prof. B. Kesava Rao of Mathematics, Prof. S. Laxmana Murthy of English, Prof. V. Bhasker Rao, Member Incharge Library and Principal of University Campus College, Dr. K. Murali Manohar Director of School of Continuing Education and Mr. K. Ramanaiah, of the University Library made presentations on the occasion.

JNU Entrance Examination

The Jawaharlal Nehru University has announced the schedule for the entrance examination for admission to various programmes of study at the University for the year 1989-90, According to this schedule, the entrance test will be held in 24 Centres spread all over the country from 19 to 21 May, 1989. The application forms shall be issued upto 4th April, 1989 while the last date for the receipt of application forms is 11 April, 1989.

The announcement for admission to direct Ph,D. and part-time programmes will be notified in due course.

It may be recalled that JNU Entrance Examinations for admission to various science disciplines has been accredited by the UGC on par with its National Educational Testing (NET) examination for the award of Junior Research Fellowships (JRFs).

As a result, candidates Joining the M.Phil/M.Tech/Ph.D. programmes in the Schools of Computer & Systems Sciences, Life Sciences, Environmental Sciences, Physical Sciences and the Centre for Biotechnology on the basis of **inter se** merit in the JNU test would now become automatically eligible for the award of JRF without their having qualified the NET examination conducted by the UGC.

Medical Degrees Recognised

Permanent recognition is reported to have been accorded to the medical degrees conferred by the Bhagalpur and Magadh universities by the Government of India on the basis of recommendation made by the Indian Medical Association. Medical degrees of these universities were not recognised till now.

A 200-bed additional ward has been started in the Srikrishna Medical College Muzaffarpur another 212-bed ward in the Mahatma Gandhi Memorial Medical College.

Workshop on Futurology

It is the moral obligation of educationists to impart future-related education and analytical abilities to students, said Dr. S.C. Seth, a well-known futurologist.

He was delivering the keynote address at a workshop on "Futurology" at Panjab University. Dr. Seth urged Panjab University to start a course on futurology as done by a South Indian university. He said the UGC had developed a one-year model syllabus for M. Phil and M. Tech in futurology.

In his inaugural address Prof. R.P. Bambah, Vice-Chancellor, emphasised the need to explore future possibilities of scientific approach in the subject.

UGC Expert Committee Visits Gauhati University

A nine-member UGC Expert Committee headed by Prof. C.L. Anand, Vice-Chancellor of Arunachal University, visited the Gauhati University on 18-20 January, 1989. The purpose of the visit was to have a mid-term appraisal of the Seventh Plan Development schemes and to fix priorities for the Eighth plan. Committee, in addition to visiting the academic and non-academic departments, also visited two local Colleges in the City of Guwahati and J.N. College Boko, a S.C./S.T. dominated college. The colleges of the city include one women college. The committee also paid a visit to the Ambari Excavation Site which is being carried out by the Department of Anthropology. The Committee was apprised of the necessity for opening a department of Archaeology at the Gauhati University during 8th Plan for undertaking vigorous teaching and research programme in the area.

Lucknow Varsity Staff College

The fourth Orientation Programme for University and College teachers recruited since 1983 is being conducted at the Lucknow

University Academic Staff College from 1-28 February, 1989. A special feature of the programme is a week-long course-module specially devised for the teachers in the higher education sector by the Lucknow chapter of Indian Society for Applied Behavioural Science in collaboration with the Indian Institute of Management, Lucknow. The course-module uses the experimental method of laboratory education to help teachers overcome "emotional blocks" and lead them to identify and work on issues central to their professional growth and effectiveness.

VAX System at IIT Madras

The Institute has recently procured a VAX 11/750, 32-bit a DEC VAX-11/750 32-bit supermini computer. The system has been supplemented with a UPS of 10KVA unit with a backup time of 30 minutes.

Apart from FORTRAN, BASIC, PASCAL and C compilers some dedicated packages like EMTP, SPICE, AUTOSEC, PLOT 10 IGL are also available. Provision is also available for transfer of files from VAX/VMS to DOS and vice-versa. This has been achieved by using an IBM PC/XT, emulated as terminal alongwith appropriate software.

The computing time is also available to outside industrial organisations and the educational institutions at specified rates.

Bio-technology at School Level

Madurai-Kamaraj University has proposed to take bio-technology to high schools and higher secondary schools according to Dr. M. Lakshmanan, Vice-Chancellor of the University.

He said recently that both teachers and pupils of the high schools would get "crash course" on the latest advancements in the bio-technology field through the university's bio-informatics centre.

The programme had been conceived to remove the misconceptions about bio-technology. The university has also proposed to have DNA literacy programme for high schools and colleges.

News from Agril. Varsities

Agro-Climatic Regions for Farm Planning

Dr. Y.K. Alagh, Member of the Planning Commission revealed that the Union Government had approved a proposal of the Commission that agro-climatic regions be made the basis of agricultural planning. He said that the Planning Commission had on the basis of earlier studies on the regionalisation decided to accept 15 regions of the national economy which are: Western Himalayan Region, Eastern Himalayan Region, Lower Gangetic Plain Region, Middle Gangetic Plain Region, Upper Gangetic Plain Region, Trans-Gangetic Plain Region, Eastern Plateaus and Hills Region, Southern Plateau and Hills Region, East Coast Plains and Hills Region, West Coast Plain and Ghats Region, Gujarat Plan and Hills Region, Westery Dry Region and Island Region. Dr. Alagh was speaking on 'Agro-climatic Zonal Approach to Agricultural Planning' on the concluding day of the five-day National Symposium on "Indian Agriculture in the Year 2000 and Beyond" organised at the the Punjab Agricultural University. He said that soil characteristics, climate, rainfall and water availability had been the principal characteristics used for regionalisation. Dr. Alagh disclosed that a Central Planning Group had been set up to coordinate the planning studies to be done at the level of each agro-climatic region. Planning teams had also been set up for each agro-climatic region headed by a senior Vice-Chancellor of the Agricultural Universities in the region. The planning teams included the Agricultural Production Commissioners, other concerned secretaries, representatives of financial institutions, a member from the voluntary organisations of the area, representatives of the Central Ministries concerned with agriculture, irrigation, environment and agricultural research. The Director of one of the agro-economic research centres in the region had been named the Secretary of the Committee. The Planning Commission had also set up a small support unit for this exercise at Ahmedabad headed by a senior consultant with agricultural planning and computer expertise and a supporting team with him. While laying major emphasis on agricultural planning, it will also include dairying, forestry, animal husbandry, aquaculture, poultry and agro-based industry for the present planning exercise.

Dr. Alagh said that the data on the spread of markets both regulated and otherwise and of credit infrastructure including banks and cooperative societies and their spread would need to be identified. He said that the Eighth Plan should provide a planning framework for the gigantic task of watershed development scheme to improve the carrying capacity of the fragile dry land areas. Considerable effort is being made to integrate rural development programmes with this effort. For certain classes of beneficiaries, on-farm development is included for employment works. The Agro-Climatic Regional Planning Team must systematise such efforts. The irrigation sector will require a massive effort on modernisation programmes and on improvement of delivery systems. Computer compatible techniques for better operation of reservoirs, improved delivery systems with electronically regulated operations of canals to minimize distribution losses and econometrically estimated demands for crop water requirement arising from behavioural studies of farmers' response to the availability of irrigation water should all become the target of average practice. He suggested that the irrigation engineers will have to be trained to respond to societal and farmers' requirements, rather than operating bureaucratic schemes of "sanction of crops". Computer oriented conjunctive use models for integrating ground water with surface water availability will need to become the standard practice, to avoid water logging and to maximise the availability of water for consumptive use. Maintenance of existing works should be a high priority. Employment works can now be used for such works. A major emphasis will have to be laid in the plains in introducing quality considerations in the agricultural and related sectors. Price policy will have to give signals for improved quality production. Experts will have to be emphasised and a strategy developed for improved agro-processing and marketing techniques. The input and technological support required would need to be carefully projectized of integrated into programmes. The representatives of the banking institutions would need to participate fully to underscore the economic viability of schemes to be finally implemented.

Scientific Workers' Conference

A Scientific Workers' Conference in Agricultural Engineering was held at College of Agricultural Engineering, Tamilnadu Agricultural University, Coimbatore on 17-18, January, 1989. During the conference, the State Department of Agricultural Engineering, Horticulture and entrepreneurs interacted with the Scientists of College of Agricultural Engineering and discussed the problems and prospects of Agricultural Engineering in Tamilnadu. Dr. S. Jayaraj, Vice-Chancellor of Tamilnadu Agricultural University in his valedictory address suggested that five subject matter specialists at the divisional level and one general specialist at Panchayat level in Agricultural Engineering should work in promoting the Agricultural Engineering strategies at the grassroot level. The wasteland development and utilisation and processing of horticultural crops are the two immediate issues which need to be tackled on priority basis. Papaya and Tomoto are the two commercial fruits available in Tamilnadu, the processing of which will give employment as well as enhance the net income. The workshop identified direct sowing dry paddy seeder and paddy harvester as a boon to farmers in reducing the cost of cultivation in the context of labour scarcity. Similarly, the groundnut seed drill has got wide scope in view of its inherent capability of larger cover under rainfed track where timeliness is associated with the soil moisture.

Integrated farming system highlight, the importance of organic recycling and introduction of sericulture, poultry and fishery through the farm pond concept.

The conference decided to bring about manuals for guiding the farmers in the application of Agricultural Engineering Technology. The conference highlighted the importance of findings of Energy Requirement scheme and decided to process the data so as to recognise the gap that exist and to intensify the Research and Development to fill the gap through the proper power source. The conference recommended any new implement to be popularised should be properly tested and analysed through adequate data for which it recommended to form a special cell.

The conference appreciated the participation of state level department functionaries of Agricultural Engineering and recognised their role in improving the syllabus content of Agricultural Engineering without sacrificing the scope of curriculum.

We Congratulate . . .

1. **Dr. Navin Chandra Nigam who has been appointed Director, Indian Institute of Technology, Delhi.**
2. **Dr. P. Koteswara Rao, Dean, Faculty of Law, Sri Venkateswara University who has been elected to the Governing Council of the Indian Law Institute.**

Computer Centre at HPKVV

A computer centre is being established in the Himachal Pradesh Krishi Vishwavidyalaya at an approximate cost of Rs. 18 lakh to provide facilities for data and word processing and literature scanning for research workers and post-graduate students. It will also facilitate maintenance of regular management information pertaining to administration and finances and preparation of academic results.

Future Plans of HPKVV

During the eighth Five Year Plan the Himachal Pradesh Krishi Vishwavidyalaya envisages the creation of a Department of Biochemistry whose teaching and research impinge on a wide range of disciplines both in Agricultural and Veterinary Sciences.

To accelerate research on pasture management and development of superior varieties of cultivated forages, a Department of Forage-Crops is also planned to be established.

For the exploitation and management of vast pond, riverine and reservoir fish resources of the State, particularly the cold water fish resources like trout, a separate department of fisheries is also proposed to be created.

For progeny testing of buffalo-bulls and their semen distribution throughout the State, a Murrah Buffalo Breeding Centre is proposed to be established at Dhaulakuan.

It is proposed to strengthen the Radio-isotope Laboratory of the university. In order to educate the farm women about latest farm know how and technologies, a Hill Farm Women Training Centre is proposed to be established under T and V system at the campus.

AIU News

Dr. SUKHDEV SINGH —Our New President

Dr. Sukhdev Singh, Vice-Chancellor, Punjab Agricultural University took over as President of the Association of Indian Universities w.e.f. 8th February, 1989. Dr. Singh succeeds Prof. N.M. Swani, who relinquished office upon retirement as Director, Indian Institute of Technology, Delhi.

Born in November, 1919, Dr. Sukhdev Singh received his early professional education in Agriculture from the Punjab University and went over to Louisiana State University, U.S.A. to do his doctorate in Agriculture. A veteran agricultural scientist and a seasoned administrator, Dr. Sukhdev Singh adorns the Vice-Chancellorship of Punjab Agricultural University since November, 1981. Earlier, he served as the Vice-Chancellor of Jawaharlal Nehru Krishi Vishwavidyalaya, Jabalpur from 1979 to 1981. He was the Deputy Director General (Crop Sciences) of the Indian Council of Agricultural Research from 1974 to 1979. It was here that he guided research on field and commercial and horticultural crops in 12 Central Research Institutes and 22 All-India Coordinated Crop Improvement Projects He collaborated in research with International Research Centres such as International Maize and Wheat Improvement Centre (CIMMYT), Mexico; International Crops Research Institute for the Semi-Arid Tropics, Hyderabad; International Rice Research Institute, Los Banos, Philippines; International Potato Centre, Lima; and on bilateral basis with countries like Canada, Sweden, and U.S.A. Dr. Singh negotiated collaborative research arrangements with USSR, Arab Republic of Egypt and Syrian Arab Republic for exchange of scientists, scientific knowledge and materials. He also negotiated and signed a protocol on collaboration in science and technology with the Republic of Cuba in April 1979 and with Mexico in June 1982 as Leader of the Delegation.

Dr. Sukhdev Singh

A keen judge of men and matters, Dr. Sukhdev Singh is a member of several boards and committees at the national level and served as the member of the Board of Trustees of the International Rice Research Institute, Manila from 1975 to 1979. Widely travelled, Dr. Singh has visited U.S.A., Mexico, USSR, France, Canada, Pakistan, Egypt, Syria, Italy, Cuba, Philippines, Indonesia, Thailand, Malaysia and Australia.

We at the Association warmly welcome Dr. Sukhdev Singh as our new President, who we hope, will bring to bear his wide and varied experience to provide new insights and meaningful leadership to the Association.

BIRLA INSTITUTE OF TECHNOLOGY

MESRA : RANCHI

(A deemed to be University)

ADMISSIONS-1989

Applications are invited for admission to the following post-graduate Degree programmes for the academic session commencing August, 1989.

(i) M.B.A. — (Master of Business Administration)
2-Yr. Full-Time Course and 3-Yr. Part time Course

(ii) M.C.A. — (Master of Computer Applications)
3-Yr. Full-Time course and 4½-Yr. Part-time Course

(iii) D.C.A. — (Diploma in Computer Application)
1-Yr. Full-Time Course

Admissions will be made through an Entrance Examination which will be held on Sunday, May 28, 1989 at 9.00 a.m. to 11.00 a.m. for M.C.A., 1.00 p.m. to 3.00 p.m. for M.B.A., and on Saturday, May 27, 1989 at 9.00 a.m. to 10.00 a.m. for D.C.A. at the following centres :

Agra, Ahmedabad, Allahabad, Bangalore, Bareilly, Bhagalpur, Bhopal, Bhubaneswar, Bombay, Calcutta, Chandigarh, Delhi, Gauhati, Gaya, Ghaziabad, Gorakhpur, Hyderabad, Jaipur, Jamshedpur, Lucknow, Madras, Muzaffarpur, Patna, Ranchi, Sindri, Trivendrum and Vijayawada.

Eligibility :

(i) For M.B.A. (2-Yr. Full-Time) course : University Degree (3-Yr. course) with atleast 50% aggregate marks in Arts/Science/Commerce and 60% marks for graduate in Engineering/Technology/Agriculture.

(ii) For M.B.A. (3-Yr. Part-Time) course : Same as of (i) above and further the candidate must have three years experience in supervisory capacity in any firm or organisation of repute.

(iii) For M.C.A. (3-Yr. Full-Time) course : University degree (3-Yr. course) with atleast 50% aggregate marks, with Maths./Statistics as one of the subjects at the Degree level.

(iv) For M.C.A. (4½-Yr. Part-Time) course : Same as of (iii) above, and further the candidate must have three years experience as executive in any firm or organisation of repute.

(v) For D.C.A. (1-Yr. Full-time) course : University Degree with atleast 50% aggregate marks with Mathematics/Statistics as one of the subject at intermediate level.
22½% seats are reserved for SC/ST candidates.

Those appearing at the various qualifying examinations are eligible. The selected candidates will, however, be required to produce the qualifying examination result by the end of August, 1989.

Application forms can be obtained by post on pre-payment of Rs. 25/- only by crossed Postal Order, payable to the Registrar, Birla Institute of Technology, Mesra, Ranchi. The request should accompany a self-addressed envelope of size 26 x 12 cm. affixed with postage stamps of Rs. 1.80 paise, clearly mentioning the form required i e. MBA, MCA or DCA as the case may be.

The last date for receipt of completed application form is **April 10, 1989.**

J. B. Saksena
REGISTRAR & OSD

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertation as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

CURRENT DOCUMENTATION IN EDUCATION

A List of Select Articles Culled from Periodicals Received in the AIU Library during January, 1989

EDUCATIONAL PHILOSOPHY

Lenzen, Dieter. Myth, metaphor and simulation—On the prospects for a systematic theory of education in the post-modernist era. *Education* (38), 1988, 107-129.

EDUCATIONAL PSYCHOLOGY

Boekaerts, Monique. Emotion, motivation and learning. *Intl. J. Ednl. Res.* 12(3), 1988, 229-34.

Shanker, Albert. Restructuring leadership. *Coll Bd. Rev.* (149), 1988, 14-17, 31.

Wutzdorff, Allen and Hutchings, Pat. An integrating seminar: Bringing knowledge and experience together. *New Directions Teaching Learning* (35), 1988, 63-74.

EDUCATIONAL SOCIOLOGY

Albrecht, Hartmut. Development processes and communication—communication problems at project level. *Education* (38), 1988, 98-106.

Ekarev, A. S. Hikmet was among the first : Foreign students in the USSR : Facts, figures, problems. *World Student News* 42(5-6), 1988, 14-18.

Rajan, S. Irudaya. Progress of female literacy in India. *Yojana* 32(21), 1988, 10-12.

EDUCATIONAL POLICY AND PLANNING

Ahlawat, S. Institutional planning. *Aryan Heritage* V(54), 1988, 16-19.

Deshpande, J.V. Diarchy in higher education. *EPW* 23 (48), 1988, 2521-22.

EDUCATIONAL ADMINISTRATION

Becker, William E. Assessing personnel practices in higher education : A misleading note of caution. *Eco. Edn. Rev.* 7(4), 1988, 445-49.

Elder, Mark. The future of university research administration. *New Directions Higher Learning* (63), 1988, 73-85.

Raman, Anantanarayanan. Autonomous Loyola College : Preparation and performance appraisal. *Prog. Edn.* LXIII(6), 1989, 122-5.

Soltis, Jonas F. Reform or reformation ? *Ednl. Admn. Q.* 24(3), 1988, 241-45.

CURRICULUM

Carpenter, C. Blaine and Doing, James C. Assessing critical thinking across the curriculum. *New Directions Teaching & Learning* (34), 1988, 33-46.

Krishna Raj, Maithreyi. Women studies : A personal saga. *Mainstream* 27(12), 1988, 25-6.

TEACHERS & TEACHING

Bachmann, Margret. Argument and contemplation in teaching. *Oxford Rev. Edn.* 14(2), 1988, 201-14.

Eble, Kenneth E. The contexts of college teaching, past and future. *New Directions Teaching Learning* (33), 1988, 87-95.

Raza, Moonis and Fernandes, Marjorie. Functions of teachers in higher education. *J. Hr. Ednl.* (Delhi) 13(1-3), 1987.88, 3-27.

Vijai Govind. University level books in India : An appraisal. *J. Hr. Edn.* (Delhi), 13(1-3), 1987-88, 126-34.

EDUCATIONAL RESEARCH

Dubey, Archana. Delphi method-uses in education. *Prog. Edn.* LXIII (9), 1989, 132-34.

EDUCATIONAL TECHNOLOGY

Alberty, Susan and Mihalik, Brian J. Evaluation of micro-computer learning experiences. *Computers Edn.* 13(1), 1989, 9-15.

Matta, Khalil F. and Kern, Gary M. A framework for research in computer-aided instruction : Challenges and opportunities. *Computers Edn.* 13(1), 1989, 77-84.

EDUCATIONAL EVALUATION

Alkin, Marvin C and Coyle, Karin. Thoughts on evaluation utilization, misutilization and non-utilization. *Studies Ednl. Eval.* 14(3), 1988, 331-340.

Das, Mamota. Open-book examination system. *Prog. Edn.* LXIII(4), 1988, 79-81.

Jaradat, Derar and Tollefson, Nona. The impact of alternative scoring procedures for multiple-choice items on test reliability, validity and grading. *Ednl. Psy. Measurement* 48(3), 1988, 627-35.

Scheuneman, Janice Dowd. An experimental, exploratory study of causes of bias in test items. *J. Ednl. Measurement* 24(2), 1987, 97-118.

Simosko, Susan. Assessing experiential learning. *New Directions Teaching & Learning* (34), 1988, 61-70.

ECONOMICS OF EDUCATION

Clausner, W. Scientists, engineers, doctors,...Welcome *World Student News* 42(5-6), 1988, 29.

VOCATIONAL EDUCATION

Gruschka, Andreas. From Humboldt's idea of general education to general "Education within the Vocational Medium". *Education* (38), 1988, 7-28.

LIBRARIES & BOOKS

Noorani, A.G. Defining issues in Rushdie books ban controversy. *Mainstream* 27 (13), 1988, 9-12.

ADULT EDUCATION

Bingyuan, Cheng. Self-study adult education. *New Directions Continuing Edn.*(37), 1988, 99-106.

Jayagopal, R. The contribution of science and technology in education : Special attention to adult and distance learning systems. *Bulletin Madras Dev Seminar Series* 18(12), 1988. p. 94-102.

Moorong, Wang. The social context of adult education in China. *New Directions Continuing Edn.* (37), 1988, 5-11.

Yuancheng, Zhu. Adult social education. *New Directions Continuing Edn.* (37), 1988, 53-8.

DISTANCE EDUCATION

Crooks, Beryl and Kirkwood, Adrian Video-cassettes by design in open university courses. *Open Learning* 3(3), 1988, 13-22.

Mkandawire, Donton S.J. and Jere, D.R. Democratization of education through distance learning and problems of assessment with specific reference to Malawi. *Studies Ednl. Eval.* 14(2), 1988, 139-46.

Villarroel, Armando. Planning of distance-learning projects. *Prospects* 18(1), 1988, 55-61.

Husen, Torsten. The Swedish school reforms : Trends and issues. *Intl. J. Ednl, Res.* 12(2), 1988, 145-54.

COMPARATIVE EDUCATION AND COUNTRY STUDIES

Inamdar, Leela. Soviet restructuring in education and culture : Ideological transformation ? *New Quest* (71), 1988, 261-73.

BIOGRAPHICAL PROFILE

Desai, M.V. Umashankar Joshi. *Mainstream* 27(13), 1988, 4-5.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

BIOLOGICAL SCIENCES

Biology

1. John, Sherine. *Changing patterns of social system in the context of ecological differences, population growth and deforestation : A study in the two districts of Western Ghats in Tamil Nadu.* Madurai.

2. Kakkanaiah, V.N. *Studies on the association of human leucocyte antigen (HLA) with selected diseases in South Indian population.* Madurai.

3. Kannan, P.R. *Molecular analysis of interplay of restriction systems and SOS function.* Madurai.

4. Mishra, Prashant. *Lipids in the structure and function of yeast membrane.* JNU. Prof. Rajendca Prasad, School of Life Sciences, Jawaharlal Nehru University, New Delhi.

5. Ravi, V. *Hydrogen photo production in higher plants, algae and bacteria : Identification of rate limiting steps.* Madurai.

6. Sujatha, T.R. *Ecology of intertidal macrobenthos of Karwar Beach.* Karnatak. Dr. B. Neelakantan, Chairman,

Marine Biology Post-graduate Centre, Karnatak University, Kodibag, Karwar.

7. Vikas Kumar. *Population models with limit cycle solutions and related properties.* JNU. Prof. L.K. Pande, School of Environmental Sciences, Jawaharlal Nehru University, New Delhi.

Biochemistry

1. Chandra, Nimaichand. *Reduced nicotinamide dinucleotide phosphate in human fetal organs.* Calcutta.

2. Dasgupta, Chiranjib. *Studies on the protective immune mechanism in cholera with special reference to intestinal adhering and haemagglutinating factors of Vibrio cholerae. Calcutta.*

3. Dasgupta, Jayati. *Developmental changes of carbohydrate metabolism in human fetal heart.* Calcutta.

4. Datta, Chhabi. *Studes on the development of human fetal testes.* Calcutta.

5. Ghoshdastidar, Dilipkumar. *Studies of the biochemical effects of lithium with special reference to brain biogenic amines.* Calcutta,

6. Joseph, Rebecca. *Transmission of immunity to offsprings before and after birth in different species.* PAU.

7. Kamath, Ajit V. *Microbial degradation of indole : Studies on 2,3 dihydroxybenzoic acid decarboxylase from Aspargillus niger.* IISc.

8. Khandraka Srikrishna. *Enzymes in health and disease : Biochemical evaluation of renal function : Urinary enzymes and proteins in the early detection of allograft rejection and diagnosis of urorenal disorders.* Madras.

9. Maiti, Ena. *Studies on carbohydrate metabolism in experimental fluoroses.* Calcutta.

10. Majumdar, Dipali. *Antifungal compounds of Curcuma zedoaria.* Calcutta.

11. Maulik, Pushpita. *Studies on the role of glutamate dehydrogenase and glutamine synthetase in N-assimilation by Azospirillum brasitense.* Calcutta.

12. Mukhopadhyay, Khana. *Extracellular production of inveetase and inulinase during submerged fermentation of mushrooms.* Calcutta.

13. Nashikkar, Vaishali Jayant. *Studies on the uptake of certain heavy metals by crop plants with special reference to their accumulation in edible portion as influenced by soil application of raw sewage sludge.* Nagpur. Dr. T. Chakrabarti, Department of Biochemistry, National Environmental Engineering Researing Research Institute, Nagpur.

14. Padmini, P. *Circulating immune complexes in human breast cancer.* Madras.

15. Ramasubramanian, T.S. *Hormones and Cuscuta development eytokinis-their endogenous levels, metabolism and role in haustoria formation.* IISc.

16. Ray. Swapankumar. *Studies on extracellular methionine production by Bacillus megaterium isolated from soil.* Calcutta.

17. Satyabhama, T. *Purification, kinetic mechanism and regulation of nitrate reductase from Candida utilis.* IISc.

18. Sengupta, Trishna. *Studies on energy metabolism in developing human fetal brain.* Calcutta.

19. Seshadri Sekhar, B. *Involvement of lipid peroxidation in thermogenesis : Mediation by alpha-adrenergic receptor under cold stress and noradrenaline treatment.* IISc.

20. Sujatha. *Studies on proteinase inhibitors in mammallian systems in health and diseases.* Mangalore. Dr. T.N, Pattabiraman, Prof. and Director, Department of Biochemistry, Kasturba Medical College, Manipal.

21. Sumathi, R. *Studies on 3-hydroxybenzoate-6-hydroxylase in Micrococcus sp.* IISc.

Microbiology

1. Arora, Jatinder. *Studies on occurrence and control of brown plaster mould, Papulaspora byssina Hots of cultivated mushroom.* PAU.

2. Rajendran, P. *Epidemiological and experimental studies on human vector and reservoir aspects of Indian visceral, leishmaniasis.* Madras.

3. Sarvamangala Devi. *An investigation into the incidence of salmonollosis in and around South Kanara District.* Mangalore. Dr. P.G. Shivananda, Prof., Department of Microbiology, Manipal.

4. Suresh, K.P. *A study on the factors affecting human spermatozoa causing infertility in couples.* Mangalore. Dr. P.G. Shivananda, Prof., Department of Microbiology, Manipal.

5. Vijaya Kumar, B.S. *Stuies on the microbial ecology of cultivated and uncultivated soils of Anantapur District, Andhra Pradesh.* Sathya Sai. Dr. A.P. Lakshmi Narasimham, Department of Biosciences, Sri Sathya Sai Institute of Higher Learning, Prasanthinilayam.

Botany

1. Bandyopadhyay, Baridbaran. *Studies on genetics and breeding in lady's finger (Abelmoschus esculentus (L) Moench) with reference to problems of improvement in South Bengal.* Calcutta.

2. Bhattacharyya, Rabindranath. *Studies on oxendole pathway of IAA metabolism, its evaluation in plant and in symbiosis of some leguminous root nodules and bacteria.* Burdwan. Prof. Pritisadhan Basu, Department of Botany, University of Burdwan, Burdwan.

3. Chigurpati, Jayaram. *The En-1 (spm) transposable element system in maize genetic characterization of mutability at the c locus.* Hyderabad. Prof. A R. Reddy, School of Life Sciences, University of Hyderabad, Hyderabad.

4. Dadheech, Pawan Kumar. *The effect of physical and chemical mutagens on green algae, Euteramous planctonicus (Korch) Bourr.* Rajasthan. Dr. (Mrs) Pushpa Srivastava, Department of Botany, University of Rajasthan, Jaipur.

5. D'Rozario, Ashalata. *Biological make up. biostratigraphic zonation and correlation of Indian Lower Gondwana coal seams with particular reference to Barakar formation.* Calcutta.

6. Dasgupta, Chaitali. *Studies on the production of Volvariella volvacea mycelium by submerged fermentation.* Calcutta.

7. Dayal, Shambhu. *Studies on the biochemical changes in the amino acid and sugar contents in lablab bean F.D.5. seed due to Aspergilius niger during storage.* Magadh.

8. De, Kaberi. *Studies on bacterial enteropathogens associated with aquatic environment of Calcutta.* Calcutta.

9. Hareeshvardhan Rao, P. *Studies on mycotoxin producing fungi associated with sorghum (Andropogon vulgare Pers).* Kakatiya. Dr. S.M. Reddy, Reader, Department of Botany, Kakatiya University, Warangal.

10. Idris, Abdul Hadi. *Association of fungi and Citrus tristeza virus in citrus dieback complex.* PAU.

11. Joshi, Darshana. *The studies on nitrogen metabolism in Triticum durum varieties and their hybrids.* Devi Ahilya. Dr. Y.N. Upadhyay, 61 Prakash Nagar, Indore.

12. Khan, Nafees Ahmad. *Productivity of mustard in relation to mineral nutrition and pyridoxine application.* Aligarh, Dr. Samiullah, Reader, Department of Botany, Aligarh Muslim University, Aligarh.

13. Madhusoodanam, P.V. *African payal (Salvinia molesta D. S. Mitchell) in Kerala State.* Calicut. Dr. B.K. Nayar, Prof. and Head, Department of Botany, University of Calicut, Calicut.

14. Mandal, Madhusudan. *Pollen morphology and systematic relationships of families Sabiaceae (S.L.) and Conneraceae.* Calcutta.

15. Mandal, Sadhana. *Studies in phytosociology, seed morphology and palynology of some weeds in rice fields of Burdwan, West Bengal.* Burdwan. Prof. S.K. Roy, Department of Botany, University of Burdwan, Burdwan.

16. Mehta, Purnima. *Studies on the enzymes of Beauveria* bassiana (Bals) Vuill, causing white muscarding disease of *Heliothis armigera Hubner, gram pod borer.* Durgawati. Dr. G.P. Agrawal, Prof. and Head (Retd), and Dr. R.C. Rajak, Department of Bioscience, Rani Durgawati Vishwavidyalaya, Jabalpur.

17. Parthasarathy, N. *Studies on the vascular flora, structure and nutrient cycling in Kalakad Reserve Forest, Western Ghats, Tamil Nadu,* Madras.

18. Phukan, Mina Kumari. *Invitro morphogenetic studies in tea and in shade tree plantation.* Calcutta.

19. Prema, P. *Diatoms from the Bay of Bengal.* Madras.

20. Radha, L. *Physiological studies on two Cyanobacteria (blue green algae), Cylindro sperum musticola Kutz. ex. Born and Flah and Oscillatoria tenuis Ag. ax Gomont.* Madras.

21. Raha, Sandhya. *Plants of Calcutta's gardens and parks.* Calcutta.

22. Ramakrishna, V. *Microbiological study of aerial plant parts with reference to Carthamus tinctorius Linn : Leafspot infection by Alternaria carthami Chow.* Osmania.

23. Sri Sarada Venkata Ramana Kumari, Devulapalli. *Studies on Pyricularia spp.* Madras.

24. Subhashini, K. *Genotypic differences in the induction of salt tolerant calli, biochemical characterization and plant regeneration in rice.* Osmania.

25. Tiwari, Chandra Kishor. *Studies on the wood decaying fungi of Jabalpur and its suburbs.* Durgawati. Dr. D.P. Tiwari, Prof., Government Science College, Jabalpur and Dr. N.S.K. Harsh, Research Officer, Disease Insect Survey (Pathology), Regional Forest Research Centre, P.O. Bilhari, Jabalpur.

Zoology

1. Abdnl Zabbar, T.U. *Studies on the carbohydrases in the digestive system of Orthaga exvinacea Hampson (Pyralididae : Lepidoptera).* Calicut. Dr. U.V.K. Mohamed, Prof. Department of Zoology, University of Calicut, Calicut.

2. Arifa, Nikhat. *Taxonomical studies as on Indian micro-Hymenoptera (Chalcidoidea) of the Kumaun region and the adjoining areas.* Aligarh. Prof. M.M. Agarwal, Department of Zoology, Aligarh Muslim University, Aligarh.

3. Arumugam, V. *Chromosal studies on some termites (Isoptera).* Madras.

4. Atiqui, Muzaffar Uddin Ahmad. *Studies on the mealy bugs with special reference to interaction between host and pest.* Aligarh. Dr. Humayun Murad, Reader, Department of Zoology, Aligarh Muslim University, Aligarh.

5. Banik, Sukanta. *Ecological studies on periphyton on artificial substrate in lentic water bodies.* Calcutta.

6. Bardhan, Sudhirranjan. *Parasitoses and pathogenecity of malaria and filaria alongwith pollution induced diseases of Durgapur city.* Burdwan. Prof. G. Majumdar, Department of Zoology, University of Burdwan, Burdwan.

7. Basu, Mala. *Studies on Ceylonocotyle s coliocoelium I. Uptake of nutrients under in vitro condition, II. Some biochemical aspects of the parasite.* Burdwan. Prof. G. Majumdar, Department of Zoology, University of Burdwan Burdwan.

8. Bhattacharjee, Samapti. *Systematic and distribution of orthocladiid midges (Diptera : Chironomidae) of Darjeeling and its adjoining areas.* Burdwan. Dr. Prasanta Kumar Choudhuri, Reader, Department of Zoology, University of Burdwan, Burdwan.

9. Biswas, Subroto. *Studies on the toxic potentialities of certain carbamate fungicides using multiple parameters.* Panjab.

10. Chattopadhyay, Achintya. *Investigations on the effects of polluted sewage effluents on the population structure of soil microarthropods at greater Calcutta area.* Burdwan. Prof. Deb Kr. Choudhuri, Department of Zoology, University of Burdwan, Burdwan and Dr. Asish Kr. Hazra, Scientist B, Zoological Survey of India. Calcutta.

11. Chetty, G. Chelva Pillai. *Studies on some South Indian oribatid mites (Acari : Archnida).* Madras.

12. Chidambaram, N. *Bio-indicator of pollution in the marine environment.* Madras.

13. Chokkalingam, Renuka Devi. *Short and long term toxic effects of phenols on Saurotherodon mossambicus (Peters).* Madras.

14. Dasgupta, Debabrata. *Evaluation of glycogen in some index organs of some common edible teleost fishes with relation to breeding cycle.* Calcutta.

15. De, Basudeb. *Histology, histochemistry and biochemistry of the pituitory gland of Indian carps.* Burdwan. Prof. C.R. Maity, Department of Biochemistry, Burdwan. Medical College, Burdwan and Prof. S. Bhattacharyya, Department of Zoology, Viswa Bharati, Santiniketan.

16. George, Sherly A. *Studies on the mango leaf webber, Orthaga exvinacea Hamps, and its parasitoids.* Calicut. Dr. U.C. Abduramiman, Prof., Department of Zoology, University of Calicut, Calicut.

17. Ghosh, Samarendranath. *Studies on certain aspects of DNA replication in Drosophila and mechanism of regulation.* Calcutta.

18. Gopichandran, R. *A study of the free living protozoa of Prasanthinilayam and its environs with special reference to biotic and abiotic factors.* Sathya Sai. Prof. C.L. Mahajan. Department of Bio-sciences, Sri Sathya Sai Institute of Higher Learning, Prasanthinilayam.

19. Harjeet Kaur. *Feeding ecology and population dynamics of doves and pigeons of Punjab.* PAU.

20. Indrabai, W. Prema Sugantha. *The role of nucleolus in mitosis and differentiation in Physarum polycephalum.* Calicut. Dr. R. Vimala Nair, Reader, Department of Zoology, University of Calicut, Calicut.

21. Jaya Sree, Vennam. *Some aspects of ecobiology and chemistry of Holothuria leucospliota (Brandt) along the Central West Coast of India.* Andhra.

22. Kanwaljit. *Evaluation of the genotoxic potential of certain chemicals.* Panjab.

23. Kishore Kumar, T. *Studies on the epidemiology of certain human gastrointestinal helminthic infections in Hyderabad population.* Osmania.

24. Mall, Prabal. *Studies on regenerating spleen of Channa punctatus Bloch with special reference to light as an environmental variable.* Sathya Sai. Prof. C.L. Mahajan, Department of Biosciences, Sri Sathya Sai Institute of Higher Learning, Prasanthinilayam.

25. Padmaja, M. *Linkage studies and X-chromosome regulation in Gryllotalpa fossor.* Delhi.

26. Pakrutty, T.K. *Studies on the digestive organs of insects.* Calicut. Dr. U.V.K. Mohamed, Prof., Department of Zoology, University of Calicut, Calicut.

27. Pal, Tapan Kumar. *Replicative and transcriptive organization of polytene chromosome of certain species of Drosophila and their implication to dosage compensation.* Calcutta.

28. Prasad, M. *Studies on the effect of induced hypo and phyper prolactinomia on the puberal transition of male albino rats.* Venkateswara. Dr. S. Govindappa, Department of Zoology, Sri Venkateswara University College, Tirupati,

29. Pratap Reddy, K. *Nerve lesion and sciatectomy induced biochemical alterations in certain tonic and phasic muscles of palm—squirrel, Funambulus palmar.* Osmania.

30. Prema, S. *Studies on the cephaline gregarines infecting some arthropods in Kerala.* Calicut. Dr. K.P. Janardhanan, Reader, Department of Zoology, University of Calicut, Calicut.

31. Rangaram, N. *Studies on some aspects of the behaviour and toxicology of a common South Indian honey bee, Api florea.* Madras.

32. Samanta, Asimkumar. *Studies on aphidiids (Hymenoptera), aphids (Homoptera) of Meghalaya and Arunachal Pradesh.* Calcutta.

33. Shyamsunder Reddy, G. *Effect of some carbamates on mice chromosomes.* Kakatiya. Dr. P. Venkat Reddy, Reader, Departwent of Zoology, Kakatiya University, Warangal.

34. Singh, Potsangbam Naba. *Studies on incicence, biology and control of certain major insects, pests, parasites and predators of tasar Silkworm, Antheraea provlei.* Manipur. Dr. B. Prasad, Head, Department of Life Sciences, Manipur University, Manipur.

35. Uniyal, Virendra Prasad. *Taxonomic studies of Elateridae (Coleoptera : Insecta).* Kurukshetra. Dr. L.K. Vats, Reader, Department of Zoology, Kurukshetra University, Kurukshetra.

36. Vijayakumari, P. *Chronic toxicity of diuron to Tilapia mossembia (Peters) : Effects on certain physiological properties of the blood.* Venkateswara. Dr. D.C. Reddy, Department of Zoology, Sri Venkateswara University College of Arts and Science, Tirupati.

Medical Sciences

1. Bandyopadhyay, Prithindranath. *Effect of submaxillariectomy on the protein synthesis in uterus and iodination reaction in thyroid gland.* Calcutta.

2. Basu, Bhaskarjyoti. *Studies on the behavioural effects of some drugs of abuse.* Calcutta.

3. Ghosh, Tapan Kumar. *Studies on the respiratory behaviour and reactivities to nicotine.* Calcutta.

4. James, M.M. *Humoral immune response against mycobacterial antigens in human leprosy.* Madurai.

5. Pathak, Yashwant Vishnupant. *Pharmaceutical appl cations of resin derivatives.* Nagpur. Dr. A.K. Dorle, Depar ment of Pharmaceutical Sciences, Nagpur University, Nagpu

Agriculture

1. Aeir, Bengongliba. *Studies on propagation of plu (Prunus spp.) by cuttings and tissue culture.* YS Parmar. D S.D. Sharma, Chief Scientist, Regional Fruit Research Station Shaboo District, Kinnaur, Himachal Pradesh.

2. Dasardha Rami Reddy, C. *Studies on inheritance tolerance of iron chlorosis in relation to dwarfing habit an yield in indica rice (Oryza sativa L).* Marathwada Agrl. D Y.S. Nerkar, Head, Department of Agricultural Botany Marathwada Agricultural University, Parbhani.

3. Khandi, Bashir Ahmad. *Studies on the effect of FY nitrogen and zinc application on rainfed maize (Zea mays L.* HP Krishi. Dr. R.C. Thakur, Department of Agronomy an Agrometerology, Himachal Pradesh Krishi Vishwavidyalaya Palampur.

4. Nageshwar Rao, T. *Gel. electrophoretic study of seed proteins and isozymes of Gossypium species with special reference to determination of genetic purity of cultivars.* Marathwada Agrl. Dr. Y.S. Nerkar, Head, Department of Agricultural Botany, Marathwada Agricultural University, Parbhani.

5. Ray, Atasi. *Interactions of pesticides with different soil components and soil.* Calcutta.

6. Routaray, Biranchi Narayan. *Bio-ecology and host-parasite relationship of Criconemella ornata on groundnu (Arachis Hypogaea L).* OUAT. Dr. S.N. Das, Dean of Research-cum-Dean, Extension Education, Orissa University of Agriculture and Technology, Bhubaneshwar,

7. Saroch, Kapil. *Studies on weed management and dates of sowing on two varieties of rice under direct seeded low land rainfed conditions.* HP Krishi. Dr. R.C. Thakur, Department of Agronomy and Agrometerology, College of Agriculture, Palampur.

8. Shanti Sarup, *Rainfall, run-off relationship and crop water use on slopy and levelled land as affected by soil management practices in maize in Kangra Valley.* HP Krishi. Dr. B.S. Kanwar, Director of Extension Education, Himachal Pradesh Krishi Vishwavidyalaya, Palampur.

9. Sharma, Manorama. *Studies on major storage insect pests of sorghum and their control method by use of edible and non edible oils.* Devi Ahilya. Dr. S.R. Devbhakt, Holker Science College, Indore.

10. Shinde, Vilas Krishna. *Studies on different aspects of Lr isogenic lines of wheat.* MP Agrl. Dr. M.S. Rane, Ex-Prof., Department of Plant Pathology, College of Agriculture, Pune.

11. Singh, Prabhash Kumar. *Phenotypic stability of grain yield and its components in chickpea (Cicer arietinum L).* Rajendra Agrl.

12. Tek Chand. *Kinetics of phosophorus fixation in relation to soil properties.* HAU.

13. Wani, Anande Ganpat. *Intercropping of forages in subabul, Leucaena leucocephala (Lam) de wit under nitrogen fertilization on production potential of green forage, nutritive value and soil fertility.* MP Agrl. Prof. V.K. Mahajan, Ex-Registrar, Mahatma Phule Agricultural University, Rahuri.

Animal Husbandry

1. Shukla, Suresh Prasad. *Studies on biochemical changes in the uterine fluid in relation to bacteriology and histopathology of the uterus in repeat breeding cattle.* PAU.

Kendriya Vidyalaya Sangathan

JNU Campus, New Mehrauli Road, New Delhi-110 067

Applications are invited from Indian Nationals belonging to Scheduled Caste; Scheduled Tribes; Physically Handicapped and Ex-Servicemen candidates as detailed below for the under mentioned posts for Kendriya Vidyalayas established throughout the country during the academic year 1989-90. (All vacancies are approximate).

1. **Primary Teachers** Scale of Pay : 1200-30-1560-EB-40-2040)

Total Reserved Vacancies : 339
Scheduled Caste Candidates : 144 -do-
Scheduled Tribe Candidates : 72 -do-
Physically Handicapped : 28 (i.e. Blind 10 and Orthopaedically Handicapped 18 Posts reserved are interchangeable also)
Ex-Servicemen : 95

Essential Qualifications : (i) Higher Secondary with JBT (2 years) OR Intermediate with JBT (1 year) Or Plus two examination [Senior School Certificate Examination with JBT (1 year)] (ii) Competence to teach both through English and Hindi Media.

2. **Trained Graduate Teachers** (Scale of Pay : 1400-40-1600-50-2300-EB-60-2600)

Total reserved Vacancies : 228

	Vacancies earmarked for				
Subject	SC	ST	Blind*	Orth.HC*	ESM
PCM	20	10	01	02	13
PCB/CBZ	17	08	01	02	11
English	23	11	02	02	15
Hindi	17	08	01	02	11
Sanskrit	07	04	01	—	04
S. Studies	15	08	01	01	10

*Posts are interchangeable.

Essential Qualifications : (i) 2nd Class Bachelor's Degree (45% marks and above in aggregate including elective and languages in the degree examination considered as equivalent). (ii) University Degree/Diploma in Education/Teaching OR Four years integrated Degree Course of Regional Colleges of Education of NCERT (iii) Competence to teach through both English and Hindi Media.

Clarification : Integrated graduation-cum-teachers training qualification of Regional Colleges of Education with at least two Kendriya Vidyalya subjects as electives.

Note : (i) For those candidates who have obtained 60% and above marks in the aggregate in B.A./B.Sc. or equivalent examination and 55% marks and above in Master's Degree examination, essential qualification. (ii) above shall be relaxed for a limited period. Such candidates, if selected, will be placed on trial basis initially for a period of two years which may be extended by one pear if the candidate is not able to acquire the teaching degree/diploma within the stipulated period of two years for reasons beyond his/her control. No further extension will be granted. (ii) Applicants should have offered and passed the Bachelor's Degree from a recognised University with any of the following groups of subjects : (a) Physics, Chemistry, Mathematics/Botany/Zoology (b) Botany, Zoology, Physics/Chemistry (c) English Literature Or Hindi Literature or Sanskrit Literature as an elective subject. (d) For TGT (Social Studies) any two of the following subjects : History, Geography, Political Science and Economics as the case may be. Candidates with B.A. (Hons) in History/Political Science/Geography/Economics as a major subject are also eligible for appointment as TGT (Social Studies).

3. **Post Graduate Teachers** (Scale of Pay : 1640-60-2600-EB-75-2900).

Total reserved Vacancies : 120
Scheduled Caste : 80
Scheduled Tribes : 40 Details given below

Subject	Vacancies earmarked for	
	SC	ST
English	12	06
Hindi	10	05
Maths	12	06
Chemistry	10	05
Physics	10	05
Biology	07	03
Commerce	03	02
Economics	06	03
Geography	05	03
History	05	02

Essential Qualifications : (Except PGT (English) & Commerce) (i) Atleast second class Master's Degree (45% marks and above considered as equivalent) in the subject concerned. (ii) University Degree/Deploma in Education/Teaching or Integrated two years Post Graduate Course (M.Sc.Ed.) of the Regional Colleges of Education of NCERT (iii) Competence to teach through both English and Hindi media.

Clarification : Integrated Post-Graduation cum teachers-training qualification of Regional Colleges of Education in a KV subject.

Note : In case of candidates possessing first class Master's Degree as well as first class Bachelor's Degree, essential qualification (ii) above shall be relaxed for a limited period. Such candidates, if selected, will be placed on trial basis for a period of two years which may be extended by one year, if the candidate is not able to acquire Teaching Degree/Diploma within the stipulated period of two years for reasons beyond his/her control. No further extension of time will be granted. Applicants who have passed the

M.Sc.Ed. in Maths, Chemistry, Physics from the Regional College of Education of NCERT are also eligible to apply for the post of PGT (Chemistry, Physics and Mathematics).

4. **Post-Graduate Teacher** (English)

Essential Qualification : (i) Atleast Second Class Master's Degree (45% marks and above considered as equivalent). (ii) University Degree/Diploma in Education/Teaching.

Note : In case of candidates applying for the post of PGT English those possessing Master's Degree with atleast 50% marks and in Bachelor's Degree with atleast 55% marks, essential qualification. (ii) above shall be relaxed for a limited period. Such candidates, if selected, will be placed on trial basis for a period of two years which may be extended by one year, if the candidate is not able to acquire the requisite teaching Degree/Diploma, within the stipulated period of two years for reasons beyond his/her control. No further extension of time will be granted.

5. **Post Graduate Teacher** (Commerce)

Essential Qualification : (i) Atleast Second Class Master's Degree (45% marks and above considered as equivalent).

Desirable : (i) University Degree/Diploma in Teaching/Education (ii) Competence to teach the subject through both English and Hindi Media.

6. **Music Teachers** : (Scale of Pay : 1200-30-1560-EB-40-2040).

Total reserved Vacancies	: 19
Scheduled Caste Candidates	: 09
Scheduled Tribe Candidates	: 04
Blind	: 01
Ex-Servicemen	: 05

Essential Qualification : Degree in Music from a recognised University or Higher Secondary with any of the following viz. Sangeet Visharad of Gandharava Mahavidyalaya, Bombay or Bhatkhande Sangeet Vidyapeeth, Lucknow or Indira Kala Sangeeta Vishwavidyalaya, Khairagarh (M.P.) or Sangeet Prabhakar Examination of Prayag Sangeet Samiti, Allahabad or equivalent qualification from other recognised Institutions. The following Degree/Diploma awarded by Pracheen Kala Kendra, Chandigarh will also be treated as equivalent qualification for the post of Music Teacher. (i) Sangeet Bhaskar with graduation in any discipline. (ii) Sangeet/Nritya Bhushan with graduation in any discipline. (iii) Sangeet Bhushan with Sr. Sec./Intermediate/Part 1 of 3 year Degree Course.(iv) Sangeet/Nritya Visharad with Sr. Sec./Intermediate/3 year Degree Part 1 examination.

7. **Socially Useful Productive Work Teacher (Electrical Gadjets and Electronics)** (Scale of Pay : 1400-40-1600-50-2300-EB-60-2600).

Total Reserved Vacancies	: 50
Scheduled Caste Candidates	: 21
Scheduled Tribe Candidates	: 11
Blind Candidates	: 02**Posts are interchangeable.
Orth. Handicapped	: 02*
Ex-Servicemen	: 14

8. **Librarians** (Scale of Pay : 1400-40-1600-50-2300-EB-60-2600).

Total reserved Vacancies	:	21
Scheduled Caste Candidates	:	09
Scheduled Tribe Candidates	:	05
Blind Candidates	:	01
Ex-Servicemen	:	06

Essential Qualifications : University Degree in Library Science or Graduate with Diploma in Library Science from a recognised Institution.

Age : As on 30.6.1989 for general candidates.

Primary Teachers	30 years or less
Music Teacher	30 years or less
TGTs	35 years or less
SUPW	35 years or less
Librarians	35 years or less
PGTs	40 years or less

Age Relaxation : (a) 6 years age-relaxation is allowed over and above the prescribed limits to the residents of Assam as per Govt. of India Instructions. (b) 5 years age-relaxation is allowed over and above the prescribed limits to applicants in North-Eastern Region (except Assam) and Jammu and Kashmir State only (c) 10 years age-relaxation is allowed over and above the prescribed limits in respect of women candidates to promote wemen's education and attract them to teaching profession (d) 5 years age-relaxation is allowed to SC/ST candidates and also discharged Defence Personnel. (e) 10 years age-relaxation is allowed to Physically Handicapped candidates. (f) Relaxable in the case of Govt. servants to the extent of their service. (g) No age limit for Kendriya Vidyalaya Sangathan Employees (Regular employees). (h) An ex-servicemen who has put in no less than six months continuous service in the Armed Forces shall be allowed to deduct the period of such service from his/her actual age and if the resultant age does not exceed the maximum age limit prescribed for the post by more than 3 years, her/she shall be deemed to satisfy the condition regarding age limit. (i) Teachers who have served in Kendriya Vidyalayas on adhoc basis will be allowed age-relaxation to the extent of adhoc service rendered by them in Kendriya Vidyalayas. For those who have served for more than six months in an academic session, benefit of one full year will be given. For those who have served for less than six months, age-relaxation will be given. This is subject to the condition that (i) the teacher had been working on adhoc basis on 30th April of the preceding year (ii) the adhoc teacher applied in response to the all-India advertisement.

Except Physically Handicapped candidates, all the Concessions mentioned above will be Concurrent. That is, if a person is eligible for more than one concession only one of the concessions up to the maximum permissible will be granted.

In case of Physically Handicapped, if a person belongs to SC/ST He/She will be allowed 15 years i.e. *10 years for, PHC and 5 years for SC/ST.

Place of Work : Anywhere in India. (As far as possible, PRTs, TGTs. Music Teachers, SUPW (EG&E) Teachers and Librarian who are selected will be posted within the region where they apply).

Probation : Selected candidates will be placed on probation for two (2) years which is extendable by one year, if necessary.

How to Apply : FOR PRTs/TGTs/PGTs POST : Application form can had from the Principal of any Kendriya Vidyalaya, either personally on payment of Rupee One in cash or by post accompanied by a self addressed envelope (20 cm × 10 cm) affixing Rs. 1-40 paise worth postal stamp alongwith a crossed Indian Postal Order of Rupee One drawn in favour of the Principal of the Kendriya Vidyalaya from whom the form is to be obtained. IN NO CASE, FORMS SHOULD BE DEMANDED FROM ANY OTHER OFFICE.

FOR MUSIC SUPW (EG&E) TEACHERS AND LIBRARIAN: Application forms to be obtained in the same manner as above from the Assistant Commissioners of Regional Offices AND NOT FROM PRINCIPALS OR ANY OTHER OFFICE.

Applications complete in all respects should be accompanied by attested copies of certificates mentioned therein and crossed Indian Postal Order of Rs. 5-00 drawn in favour of Kendriya Vidyalaya Sangathan payable at the Regional Office in which the candidate desired consideration of his/her candidature (NO FEE FOR SC/ST CANDIDATES). In case, a candidate is not able to obtain Indian Postal Order, he/she may send a Crossed Bank Draft in favour of Kendriya Vidyalaya Sangathan payable at the Regional Office in which the candidates desires consideration of his/her candidature. Selection of Post Graduate Teachers is being made CENTRALLY by the KVS (Hqrs). Hence there is no need to apply in more than one region for any PGT posts by the candidate who may apply in any Region. Completed application should be submitted by **20.3.89** to the Assistant Commissioner of the Regional Office of the candidates' choice (please see annexure attached to the application form for the purpose of knowing locations of Headquarters and Regional Offices,

NOTE : THOSE WHO HAVE ALREADY APPLIED IN RESPONSE TO THE EARLIER ADVERTISEMENT DATED 24th AND 31st DECEMBER. 1988 FOR THE SAME POST, NEED NOT APPLY AGAIN.

Instructions

(a) Regional distribution of Kendriya Vidyalaya Sangathan Net-work, indicating the jurisdiction of Regional vis-a-vis Kendriya Vidyalayas has been enclosed with the application form to enable a candidate to have an idea about the regional distribution of Kendriya Vidyalayas. New Schools opened subsequently may also be posted initially.

(b) The Sangathan reserves the right to fix criteria for calling candidates for interview. Mere eligibility will not vest any right on any candidate for being called for interview and the Sangathan's decision in this regard will be final.

(c) Departmental candidates belonging to the Kendriya Vidyalayas fulfilling the qualifications etc., laid down for the post may apply to the Assistant Commissioner concerned through proper channel.

(d) Applications of candidates (other than those covered under (c) above and of Union Territory of Arunachal Pradesh and the State of Sikkim will not be considered unless they are registered with the Employment Exchanges. Only the current registration Number of the Employment Exchange and the place of Employment Exchange will have to be indicated in the application form. After indicating the current Employment Registration No., the application shall be sent to the concerned Assistant Commissioner of Regional Office directly. **The application should not be sent through the Employment Exchange.**

(e) Incomplete applications forwarded in violation of the instructions shall be rejected. No correspondence whatsoever will be entertained in this regard.

(f) Separate applications are required for each post quoting Advertisement No. and the category of post applied for.

(g) Candidates called for interview will be paid T.A. as per Sangathan's Rules.

(h) Employees of Central/State Govt., and those of the Public Sector Undertakings and Autonomous Bodies financed by the Govt. of India should apply direct to the respective Asstt. Commissioner of KVS after getting their names registered with the Employment Enchanges. In case of Selection in KVS, they have to furnish 'NO OBJECTION CERTIFICATE from their parent department.

(i) Application form for the current year only should be used. Applications submitted on the old forms will be rejected. While purchasing application forms from the Kendriya Vidyalayas. care should be taken, to ensure that the application form bears the year 1989.

(j) APPLICATION SENT TO THE CENTRAL EMPLOYMENT EXCHANGE WILL NOT BE ENTERTAINED.

davp. 88/730

MOTHER TERESA WOMEN'S UNIVERSITY

KODAIKANAL 624 102

NOTIFICATION NO. 50

Applications are invited from Women Post Graduates and also from Women Teachers interested in doing M.Phil. in Women's Studies under the Sequential Programme of the Mother Teresa Women's University to be conducted at Kodaikanal from 2nd May to 10th June 1989 in the following Faculties

1. Economics
2. Education
3. English
4. Family Life Management
5. Historical Studies
6. Psychology
7. Sociology
8. Tamil

Eligibility for Admission

1. For II Class M.A. (not less than B+) with 3 years of teaching experience in Colleges, Polytechnics and Higher Secondary Schools.
2. For M.Phil. in Education, M.Ed. is essential.
3. For M.Phil. in Psychology, candidates with Master's Degree in Psychology or any other subject with specialisation in Psychology are eligible to apply.
4. Non-teaching candidates and unemployed Post-Graduate candidates also may apply and their enrolment will be subject to their merit and performance at an interview.

Boarding and Lodging will be provided by the University at the expense of the scholars.

Application forms with prospectus can be obtained from the Registrar on requisition in writing with a self addressed stamped envelope for Rs. 1.50 and with a Postal Order for Rs. 15/- drawn in favour of the Registrar, Mother Teresa Women's University, Kodaikanal. The last date for the receipt of application is **Friday 31st March, 1989.**

REGISTRAR

TATA INSTITUTE OF FUNDAMENTAL RESEARCH

HOMI BHABHA ROAD, BOMBAY-400 005

Advt. No. 3/89

ADMISSIONS FOR RESEARCH LEADING TO PH.D. IN MOLECULAR BIOLOGY

The Molecular Biology Group of the Tata Institute of Fundamental Research admits, each year, a small number of Research Scholars for pursuing basic research in modern biology, The Research Scholars work towards a Ph.D. in one of the following areas :

Molecular genetics, recombinant DNA, molecular parasitology, epithelial membrane transport, differentiation and development, neurogenetics and behaviour, neurochemistry and neuroanatomy.

Students with a good Master's degree in any branch of Biology, Physics, Chemistry, Mathematics or Engineering with a strong interest in Biology are eligible for admission. Students who are eligible for their Master's degree examination in May/June this year may also apply.

Research Scholarships carry an initial monthly honorarium of Rs. 2200/-. The appointments are made for a year at a time but are renewable upto a maximum of 5 years. Candidates called for interview from outstations will be paid 1 1/3 railway fare each way by second class (not air-conditioned) and a sum of Rs. 35/- as halting allowance for the day on which they are interviewed.

A small number of applicants to the Ph.D. programme will be invited to work in the laboratory for a 6 week period during May and June. Please indicate in your application whether you would like to be considered for this. Selected candidates will be paid a stipend of Rs. 600/- per month and return second class rail fare from their place of residence to Bombay. Arrangements will be made for hostel accommodation during the programme.

How to Apply

Prescribed application forms may be obtained by writing to the Administrative Officer (Establishment), Tata Institute of Fundamental Research, Homi Bhabha Road. Colaba, Bombay-400 005 alongwith a self-addressed stamped (Rs. 1.40) envelope of approximately 25 cms x 12 cms. The last date for receiving applications in the prescribed form is **March 30, 1989.**

NATIONAL METALLURGICAL LABORATORY

Council of Scientific & Industrial Research

JAMSHEDPUR-831007

NML Advertisement No. 2/89

Applications are invited to fill up the following posts in the National Metallurgical Laboratory, Jamshedpur.

I. System Analyst—2 posts

Scale of Pay : Rs. 3000-100-3500-125-4500 at level 'C'
Rs. 2200-75-2800-EB-100-4000 at level 'B'

Essential Qualifications

First Class Bachelor's Degree in Engineering/Computer Science or Post Graduate/Master's Degree in Mathematics / Statistics / Physics / Business Administration / Management with 6 years and 4 years experience for 'C' and 'B' level respectively in design and development of application Softwares in BASIC/FORTRAN/PASCAL/COBOL.

OR

Post Graduate Degree in Engineering/Computer Science with 4 years and 2 years experience for 'C' and 'B' level respectively in design & Development of application softwares as above.

II. Junior Technical Assistants—3 posts

Scale of Pay : Rs. 1400-40-1800-EB-50-2300

Essential Qualifications

Area—1

B.Sc. Degree in Physics/Chemistry/Mathematics or Diploma in Engineering/Technology of 3 years duration with about 2 years experience in a research laboratory for handling / maintaining sophisticated equipments such as Scanning Electron Microscope (SEM) Transmission Electron Microscope (TEM), X-ray Driffractometer (XRD), X-ray Fluorescence (XRF), Thermal Analysers (DTA/DSC), Dialatometer etc.

Area—2

B.Sc. Degree in Physics/Chemistry/Mathematics/Statistics or Diploma in Computer Science with about 2 years experience in handling a few software packages such as sprade-sheet, d-BASE and familiarity with at least one computer language.

III. Security Officer—1 post

Scale of Pay : Rs. 2000-60-2300-EB-75-3200-100-3500

Essential Qualifications

A Degree in Science/Arts/Commerce from a recognised University with at least 10 years experience in a similar position in large industrial undertaking/Research Laboratory/Police / Defence Services. Candidate should be conversant with modern methods of security and fire prevention. Should be able to handle fire arms and should possess good physique and personality.

Age 35 years : Relaxable for departmental candidates and in the case of Scheduled Caste and Scheduled Tribe candidates and other specified categories as per Government of India instructions.

Job requirements

Will be responsible for Security, Watch and Ward, Fire fighting arrangements of the Laboratory/Pilot Plants, and its residential colonies; Liaison with the local Police Authority and any other work of responsibility assigned by the Head of the Laboratory.

IV. Medical Officer (Homeopathy)—1 post

Scale of Pay : Rs. 2000-60-2300-EB-75-3200-100-3500

Essential Qualifications

Must possess Diploma in Homeopathic Medicines and Surgery from a recognised Homeopathic College and Hospital registered by University/Board and candidate having distinction in the above fields will be preferred.

Desirable

The candidate should have atleast 10 years working experience. The candidate should possess vocational training in occupational diseases with particular reference to industrial environment.

Age 35 years : Relaxable for departmental candidate and in the case of Scheduled Caste and Scheduled Tribe candidates and other specified categories as per Government of India instructions.

Job requirement

The nature of the duties will be to attend to the staff and members of their families in the staff colonies every day

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NATIONAL INSTITUTE OF RURAL DEVELOPMENT

Rajendranagar, Hyderabad-500 030

FELLOWSHIP PROGRAMME

NIRD awards Fellowships to working/retired senior administrators, professionals belonging to the banking and engineering sectors, and eminent academicians, interested in carrying out research on different aspects of Rural Development.

The **FELLOWSHIP GRANT** for senior administrators/professionals will be 30% of the pay drawn by them and for others Rs. 3,000/- Contingency grant of Rs. 6,000/- p.a. Brochure containing rules, regulations and application form will be sent on request by the Registrar on payment of Rs. 10.00 by D.D./Postal Order. The last date for receipt of Applications in the prescribed form is March 31, 1989.

REGISTRAR
NIRD
RAJENDRANAGAR
HYDERABAD-500 030

ASP NIRD 89 13

as per the schedule of work to be allotted. The incumbant shall be required to render his services round the clock and to attend to the call duties. No private practice is allowed for which 'NON PRACTICING ALLOWANCE' will be admissible as per rule.

V. Safety Inspector—1 post

Scale of Pay : Rs. 1640-60-2400-EB-75-2900

Qualifications and Experience

(i) Intermediate/Higher Secondary/ Senior Cambridge Certificate, Graduate in Arts/Science preferred.

(ii) A Diploma in Industrial Safety Training from a recognised institution with adequate experience in the application of safety measures in mineral and metal industries, heavy integrated pilot plants etc.

Age 28 years : Relaxable in the case of departmental candidates.

GENERAL

1. All the posts carry besides pay, usual allowances as admissible under the Central Government rules viz. D.A., HRA, CCA etc.
2. Application form for posts may be obtained by sending self-addressed stamped envelope (Rs. 1.40 paise) of 28 x 13 cm. from the Administrative Officer, National Metallurgical Laboratory, Jamshedpur-831007 by **10th March, 1989.** Completed application forms together with non-refundable application fee of Rs. 8.00 (Rs. 2.00 for Scheduled Caste/Scheduled Tribe candidates) in the form of **Crossed Demand Draft drawn in favour of Director, National Metallurgical Laboratory, Jamshedpur, alongwith attested copies** of certificate/testimonials etc., should reach the Director, National Metallurgical Laboratory, Jamshedpur-831007 **by 31st March, 1989.**
3. Candidates applying for more than one post should submit separate applications alongwith the prescribed application fee specifying number of advertisement and post applied for.
4. Incomplete applications and those received after the last date will not be considered.

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

P.O. IIT, POWAI, BOMBAY

Advertisement No. C-268/88-89

Applications on plain paper are invited from the citizens of India for the following parmanent posts at the Computer Centre of this Institute. Persons employed in Government/Semi-Government Organizations or Educational Institutions should apply through proper channel. The posts carry allowances such as D.A., H.R.A., C.C.A. as per rules of the Institute which at present correspond to those applicable to the Central Government Employees stationed at Bombay. Depending on qualifications and experience, a higher salary may be offered. If a candidate is not found suitable for the post he/she has applied, he/she may be considered for a lower post.

Computer Centre has a most modern and sophisticated fourth generation main frame Computer System (Cyber 180/840). In addition there are a number of mini and micro-computing facilities. All these are used to take care of the computing requirements of the Institute and some other selected organizations.

(I) Software Engineer

Scale of pay : Rs. 1200-50-1300-60-1900 (likely to be revised shortly). The total emoluments on the minimum of the scale is Rs. 3593/- per month (excluding H.R.A.).

The incumbent, in addition to assisting the Systems Manager will plan and carry out the following duties :—

(a) Regular performance monitoring and tuning of the system(s) available at the Centre.

(b) Software installation, development and maintenance

(c) Planning and conducting short-term courses primarily for the Computer users.

(d) Planning and preparing relevant documentations for the Computer users.

Qualifications

(M.E./M.Tech./B.E./B.Tech. in Computer Science or in any field of Engineering with good academic record.

OR

(b) M Sc. in Computer Science/ Mathematics/Physics with good academic record.

Experience

The candidates should have at least five years of relevant experience, out of which not less than 2 years should be in design of system software for large computer systems. Some exposure to the internals of a contemporary operating system is essential.

Age Limit : Not exceeding 35 years.

(II) Senior Programmer

Scale of Pay : Rs. 700-40-1100-50-1600 likely to be revised shortly). The total emoluments on the minimum of the scale is Rs. 2430/- per month (excluding H.R.A.).

Qualifications & Experience

(a) Bachelor's degree in Engineering/M.Sc. in Computer Science/ M.C.A. with good academic record and at least three years experience in Software and applications package development in a reputed concern.

OR

(b) B Tech./B.E. in Computer Science with good academic record and at least one year experience in Software development in a reputed concern.

OR

(c) M.Tech. with specialization in Computer Science with relevant project experience and good academic record.

OR

(d) M.E./M,Tech. in any discipline of Engineering with good academic record and at least one year experience in software and applications package development in a reputed concern.

Age Limit : Not exceeding 30 years.

Depending upon the availability, the Institute may provide residential accommodation on payment of usual licence fee etc. to the selected candidates. Also the selected candidates may be permitted to register for their higher degrees as per the rules of the Institute. Candidates called for interview will be paid first class railway fare from the place of their residence to the Institute and back by the shortest route.

Candidates who possess the requisit qualifications and experience may apply stating full name and address, date of birth, details of academic qualifications and experience with copies of certificates, testimonials, list of publications, if any, and the names of three referees with their postal addresses to the Registrar, Indian Institute of Technology, Powai, Bombay—400 076 on or before **15th March 1989** alongwith as crossed postal order for Rs. 7.50 Candidates belonging to SC/ST communities need not send a postal order.

REGISTRAR

INDIAN COUNCIL OF MEDICAL RESEARCH

The Council proposes to appoint a **Director** for its Institute of Pathology, New Delhi.

The Institute is primarily devoted for promotion of pathology as a discipline in Biomedical activities in India. The responsibilities of the Institute are research in the field of Pathology of major health problems of the country. Development of consultative mechanism for referal services. Audiovisual technology for medical education and training centre for medical and paramedical personnel. The Institute being in close proximity of major hospitals gets the benefit of extensive clinical material for its research activities. The Institute has acquired new modern equipment and other infrastructural facilities for discharging its function.

Qualifications & Experience : Essential : (i) M.D./Ph.D. or D.Sc. in Pathology of a recognised University with 15 years experience in research/teaching in Pathology. (ii) original work as evidenced by publication.

Desirable : Experience in Administrative and Organisation of research.

Job Requirements : The Director is expected to provide high level leadership in the identification, formulation and implementation of R & D Programmes and Projects of National importance in the field of Pathology. He will establish rapport with academic and professional institutions and government and international agencies dealing with various related Research and Development aspects for ensuring multi-agency cooperation whenever necessary for fulfilment of the objectives of the Institute. He will interact with local and national health authorities in the formulation, implementation and assessment of the Institute's research activities. He will have the over-all responsibility for the working of the Institute within the framework of the ICMR system and for ensuring an atmosphere conducive for creative work.

Salary/Conditions of Service : The scale of pay attached to the post is Rs. 5900-200-6700 plus allowances as per Central Govt. Rules and N P.A. of Rs. 900/- p.m. for medical graduates only. Higher initial pay can also be considered. Free medical aid and leave travel concession are also permissible for the employee and his family as per Govt. of India Rules.

Age : Below 50 years, SC/ST candidates allowed relaxation in accordance with Government of India Rules.

Educational qualification, relaxable in the case of candidates otherwise well qualified. Benefits of pension admissible. Private practice is not allowed. However, non-practising allowance is admissible to medical graduates only as per rules of the Council. Application forms can be obtained from the office of **the Director General, Indian Council of Medical Research,** Ansari Nagar, Post Box No. 4508, New Delhi-110 029. Applications complete in all respects should be sent to the Director General, Indian Council of Medical Research, Ansari Nagar, Post Box, No. 4508, New Delhi latest by **10th April, 1989.** Applications should be accompanied with crossed postal order for Rs. 8/- (No fee for SC/ST candidates) made out in the name of **DG, ICMR, New Delhi.** Applications without postal order will not be entertained.

Candidates called for interview will be paid 1st class rail fare by the shortest route on production of documents. No TA/DA is admissible for joining the post or on termination of appointment. Application from the employee working under the Central/State Govt./Semi Govt. and Govt. controlled undertaking should be sent through the employers and be received before the closing date alongwith the certificate that the applicant will be relieved within three months of receipt of appointment orders. Advance copies will be considered subject to the proviso that the certificate will be produced at the time of interview. Applications received after the closing date will not be considered. At the time of interview they should produce "NO OBJECTION CERTIFICATE" from their employer.

The name of the post and of the Institute must be indicated in the application. Incomplete and late applications will not be entertained.

G.B. PANT UNIVERSITY OF AGRICULTURE & TECHNOLOGY, PANTNAGAR 263145

District Nainital, U.P.

ADMISSION NOTICE

A Competitive Entrance Examination for admission to the First year of the following academic programmes will be held on Sunday the 7th May, 1989 from 10 A.M. at Agra, Allahabad, Delhi, Hyderabad, Kanpur, Lucknow, Roorkee, Varanasi, and Pantnagar Centres.

I. Undergraduate Programmes in Agriculture, Veterinary Science, Fisheries Science and Home Science (for girls). **Eligibility :** Inter Science or Agriculture or equivalent.

II. Postgraduate Programmes in 41 Majors in the areas of Agriculture, Veterinary Science, Electrical, Mechanical, Agricultural Engineering, Basic Science, Food Science, and Home Science (for girls). **Eligibility :** 55 Marks in aggregate or equivalent in relevant Degree examination with not more than one III Division at High School or Intermediate level.

III. Ph.D. programmes in 28 Majors in the areas of Agricultural Sciences, Veterinary Sciences, Electrical, Mechanical, Agricultural Engineering, Food Scienee, and Basic Sciences. **Eligibility :** Master's degree in relevant area in First Division or 4.00 out of 5.00 OGPA with not more than one III Division at High School or Intermediate level.

Detailed information on eligibility etc. and application form with Information Brochure can be obtained be sending an Account Payee Bank Draft for Rs 10.00 in favour of G.B. Pant University of Agriculture & Technology, Pantnagar, on State Bank of India, Pantnagar Branch (Code 1133), or United Commercial Bank, Pantnagar Branch with a self-addressed envelope of 10"×7" size bearing postage stamps of Rs. 4.00 by unregistered parcel or may be obtained on payment in cash at the Counter in the Admission Cell at Pantnagar.

LAST DATE

10th March 1989 with the prescribed fee, or from **11th to 25th March, 1989** with a late fee of Rs. 50.00 more for Pantnagar Centre only.

S C. Malaviya
COORDINATOR (Admissions)

SANJAY GANDHI POST GRADUATE INSTITUTE OF MEDICAL SCIENCES

POST BOX NO. 375, RAE BARELI ROAD, LUCKNOW-226 001

Last Date : 15 March, 1989

Advt. No. 60/89

REQUIRES

Professors and Associate Professors in following Specialities

SPECIALITY

1. Neurology
2. Cardiology
3. Cardiovascular Surgery
4. Nephrology (Only for Professor)
5. Gastrointestinal Surgery (Only Assoc. Prof.)
6. Endocrinology
7. Endocrine Surgery
8. Pathology
9. Microbiology
10. Radiodiagnosis
11. Radiotherapy
12. Anaesthesiology

Pay Scale (Pre-revised) Medical	Non-Medical	Age Ordinarily not more than	Experience (Post MD/MS)
Professor Rs. 2500-100-3200	Rs. 1700-75-2525	50 Years	10 Yrs. (Out of which 5 Yrs. should be as Reader/Associate Professor.
Associate Prof. Rs. 2100-75-2625	Rs. 1600-60-2020	45 Years	7 Yrs. (Out of which 5 Yrs. should be of Assistant Professor).

Dearness and other allowances will be paid as per Institute rules. Pay-Scales admissible at present are at par with those at AIIMS, New Delhi. Similar Pay-Scales as revised at AIIMS, New Delhi will be admissible.

Qualification and Experience

1. A Post-Graduate qualification e.g. M.D./M.S. or recognised qualification equivalent thereto, in parent branch of super speciality.

2. A qualification in super-speciality such as D.M./M.Ch. or a recognised qualification equivalent thereto.

For post of Professors and where formal DM/M.Ch. qualifications are not available a recognised training/experience in the super speciality of atleast 5 years may be considered.

3. Teaching and/or research experience after prescribed post-graduate qualification of at least 10 years and 7 years (as specified above).

General Conditions

Pension/Gratuity and other benefits as per rules of the Institute. Additional increments and relaxation in age may be considered in deserving cases. Applications on plain paper should reach the office of the undersigned latest by **15th March, 1989.** The applications of overseas candidates may reach in 8 weeks of this advertisement. Persons in employment should send their applications through proper channel. Advance copy may be sent but interview letters will not be issued without prior clearance of the current employers.

Please mention Advt. No. and the speciality on top of application.

Application should include

1. Qualifications with year of passing.
2. Details of post MD/MS Employment/experience.
3. List of publications.
4. Name of 3 referees who are personally familiar with the work of the candidate; and
5. Reprints of five best papers.

The Director reserves the right to reject any or all applications without assigning any reasons. Incomplete applications are liable to be rejected.

Prof. B.B. Sethi
DIRECTOR

JAWAHARLAL NEHRU UNIVERSITY

NEW DELHI-110067

Advt. No. A & E-II/2/89

JNU has openings for the following temporary positions for its Academic Staff College under the UGC Scheme.

1. **Deputy Director/Associate Professor :** (Rs. 3700-5700) Qualifications : Good academic record with doctoral degree or equivalent published work. Actively engaged in research or innovation in teaching methods or production of teaching materials. About 5 years experience with minimum three years as lecturer or equivalent position.

2. **Asstt. Director :** (Rs. 2200-4000) Qualifications : M.A. second class with at least 55% marks in any subject. At least 10 years experience in University Administration, out of which not less than 5 years as Section Officer or equivalent. May be conversant with purchase/store procedures, knowledge about running Hostels/Guest Houses and should be good in drafting & general correspondence.

3. **Semi Professional Assistant :** (Rs. 1350-2200) Qualifications : Graduate with certificate in Library Science both at least in second class.

4. **Junior Stenographer** (Rs. 1200-2040) Qualifications : Matriculation or equivalent, 80 w.p.m. in English Shorthand. Candidates will have to qualify written test in English of 3 hours duration & General Knowledge of 1-1/2 hours duration followed by stenography test at the speed of 80 w.p.m.

Any of the qualifications may be relaxed at the discretion of the Selection Committee of the University. A higher start may also be granted ro the persons possessing higher qualifications/experience. Appointment can be made on deputation also. Both ways second class rail fare by the shortest route is payable to the candidates invited for interview/test.

Applications are invited on plain paper enclosing a copy of the curriculum vitae latest by **3rd March, 1989** & addressed to the Dy. Registrar A & E II), Room No. 204-B. Administrative Block, Jawaharlal Nehru University, New Delhi-110067. The candidates should be available for interview anytime during the month of March or later. Selected candidates will be required to join immediately.

ACADEMIC STAFF COLLEGE

UNIVERSITY OF POONA

POONA : 411 007

U.G.C. SPONSORED REFRESHER COURSES IN ENGLISH, SANSKRIT, ECONOMICS & CHEMISTRY

Applications from in service teachers having more than six years of teaching experience in college/University Departments are invited for Refresher Course in the following subjects.

Subject	Name & Address of the Course Coordinator	Tentative Dates
Chemistry	Dr. M.S. Wadia Dept. of Chemistry, University of Poona, PUNE : 411 007.	29.05.89 to 24.06.89 (Two Batches) 1. Biochemistry 2. Physical Chemistry 01.05.89 to 24.06.89 (Two Batches) : 1. Inorganic Chem. 2. Organic Chem.
Economics	Prof. B.S.R. Rao, Gokhale Institute of Politics & Economics PUNE : 411 004,	10.04.89 to 28.04.89 15.05.89 to 02.06.89 19.06.89 to 07.07,89.
Sanskrit	Dr. (Mrs.) Sarója Bhate Dept. of Sanskrit, University of Poona, Pune-7.	01.06.89 to 30.06.89
English	Dr. Sudhakar Pandey, Dept. of English, University of Poona, PUNE : 411 007.	01.05.89 to 27.05.89.

30 to 35 teachers from Colleges/University Departments from Western Region Universities and 4 to 5 teachers on all India basis will be selected for each Refresher Course in the subject. Application form for the subject courses can be obtained from the above given subject Coordinators. Duly filled in application forms forwarded through the Head of the Institute should reach the Subject Coordinator/Director, Academic Staff College, Poona University, on or before **15th March, 1989.**

D.D. Wani
DIRECTOR

TATA INSTITUTE OF SOCIAL SCIENCES

DEONAR

Bombay-400 088

No Admn./Advt./89

February 10, 1989

Applications are invited in the prescribed form for the following posts in the Department of Health Services Studies. All posts are temporary for a period of five years and terminable with one month's notice on either side. If the posts are sanctioned on a permanent basis, and all other things are equal, including performance, the person will be absorbed on a permanent basis.

The prescribed application form, along with the details of qualifications, experience, etc., prescribed for each post, should be obtained from the above address, either in person, or by post, by sending an application for the same, along with a stamped (Rs. 2.00) self-addressed envelope superscribed "REQUEST FOR APPLICATION FORM FOR TEACHING POSTS".

For All Posts

M.A. degree with 55% of the marks or a grade point average of 3.5 under the seven point UGC grade system or an equivalent degree of a foreign university. Those who do not have the required marks/grades, or the specific field in which the post is advertised, need not apply.

I. **Professor** : (One post) in the pay scale of Rs. 4500-150-5700-200-7300+D.A. and other allowances, having M.A. degree in Social Work with major teaching and research experience in the field of health administration, and organising training programmes for health/hospital administration.

II. **Reader** : (One post) in the pay scale of Rs. 3700-125-4950-150-5700 + D.A. and other allowances, having a Master's degree in Social Sciences/Social Work plus a Master's degree in Public Health or Master's degree in Hospital/Health Administration OR a M.B.B.S. degree plus a Master's degree in Public Health or a Master's degree in Hospital/Health Administration.

III. **Lecturers** : (Two posts), (One post is reserved for SC candidates, Applications from general candidates will not be entertained for this post), in the pay scale of Rs. 2200-75-2800-100-4000+D.A. and other allowances, having a Master's degree in Economics, Anthropology or Management OR a degree in Medicine with a post-graduate qualification in Public Health/Health or Hospital Management. The person should also have a second class in the Bachelor's degree.

The last date for the receipt of completed application form is 10-3-1989.

N. Krishnamoorthy
REGISTRAR

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16 10

University News

MONDAY, FEBRUARY 27, 1989 Rs. 2.50

Dr. Shridath Ramphal, Commonwealth Secretary General (right) receiving an honorary degree of Doctor of Letters Dr. G. Ram Reddy, Vice-Chancellor, IGNOU at the University's first Convocation. Prime Minister Mr. Rajiv Gan presided over the Convocation and Dr. Ramphal delivered the Convocation Address.

A scheme of low priced textbooks
for students made available with
British Government assistance.

ELBS

ELBS–NEW TITLES / NEW EDITIONS — October 1988

New Title
Ashdown, R.R.,
Done, S.
Colour Atlas of Veterinary Anatomy : Volume 1 :
The Ruminants
Publisher : Bailliere Tindall
ISBN : 0 7020 1321 8
Edn : 1984 ELBS Price : £12.00 Standard Price : £35.00

New Edition
Harvey, J.
Modern Economics : An Introduction for Business and
Professional Students
Publisher : Macmillan
ISBN : 0 333 48613 7
5th edn 1988 ELBS Price : £2.65 Standard Price : £7.95

New Edition
Jackson, N.,
Dhir, R.K. (editors)
Civil Engineering Materials
Publisher : Macmillan
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4th edn 1988 ELBS Price : £3.65 Standard Price : £10.95

New Edition
Mandl, F.
Statistical Physics
Publisher : John Wiley
ISBN : 0 471 91909 8
2nd edn 1988 ELBS Price : £3.65 Standard Price : £10.95

New Edition
Murrell, J.N.,
Kettle, S.F.A.,
Tedder, J.M.
The Chemical Bond
Publisher : John Wiley
ISBN : 0 471 91906 3
2nd edn 1985 ELBS Price : £3.50 Standard Price : £10.45

ELBS—NEW TITLES/NEW EDITIONS — November 1988

New Title
Drury, C.,
Management and Cost Accounting
Publisher : Van Nostrand Reinhold
ISBN : 0 278 00086 X
2nd edn 1988 ELBS Price : £5.95 Standard Price : £15.95

New Edition
Shotbolt, C.R.
Technician Manufacturing Technology Volume 2
Publisher : Cassell
ISBN : 0 304 31639 3
2nd edn 1988 ELBS Price : £2.50 Standard Price : £7.50

ELBS—NEW TITLES/NEW EDITIONS — December 1988

New Edition
Blood, D.C.,
Radostits, O.M.
Veterinary Medicine : A Textbook of the Diseases of
Cattle, Sheep, Pigs, Goats and Horses
Publisher : Bailliere Tindall
ISBN : 0 7020 1318 8
7th edn 1988 ELBS Price : £13.50 Standard Price : £39.50

New Edition
Wade, H.W R.
Administrative Law
Publisher : Oxford University Press
ISBN : 0 19 442430 8
6th edn 1988 ELBS Price : £19.95 Standard Price : £22.50

Available at all leading bookshops. For further information contact

British High Commission
British Council Division
AIFACS Building, Rafi Marg, New Delhi-110 001

Also at :

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Nariman Point, Bombay 400 021

5, Shakespeare Sarani
Calcutta–700 071

737, Anna Salai
Madras 600 002

UNIVERSITY NEWS

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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor :
SUTINDER SINGH

ENGLISH IN INDIA
Problems & Prospects

Shivendra K. Verma*

Educationists and applied linguists have started asking a variety of questions regarding the role of English in education in India. These questions are related to some of the vital issues in language planning which in their turn are related to the basic principles and policies underlying educational planning.

Since 1985 three documents stating policies and plans in the field of education have been published. *Challenge of Education—a policy perspective* was published by the Ministry of Education, Government of India in August, 1985. This document makes it clear that in an information—rich and technology—intensive society the focus should shift from teacher-centred programmes to learner-centred programmes which are organised to develop in the learners the ability 'to learn how to learn'. Language which is central to education and is the most important tool for understanding and interpreting the universe around us does not find even half a page in this policy statement.

The National Policy on Education was published by the Ministry of Human Resource Development in May, 1986. There are references to language but there is no policy statement regarding language in this document. What it states in very general terms is that the 1968 policy regarding the development of languages will be implemented more energetically and purposefully.

This document was followed by *Programme of Action (1986)* published by the Government of India, Ministry of Human Resource Development in August, 1986. It has a full chapter on language development. According to this document, the new policy emphasizes the adoption of regional languages as the media of instruction at the university stage; vigorous efforts at the implementation of the three-language formula; improvement in the linguistic competencies of students at different stages of education; provision of facilities for the study of English and other foreign languages; development of Hindi as the link language, as provided for in Article 351 of the Constitution. The Three-Language Formula provides for the study of a modern Indian language, preferably one of the southern languages, apart from Hindi and English in the Hindi-speaking states and of Hindi along with the regional language and English in the non-Hindi-speaking states.

Whenever two or more languages are in use in a setting, the nation concerned has to plan the 'roles' of languages in terms of 'functions' by answering the following questions :

1. What should be the medium of instruction at the primary, secondary, tertiary, and post-experiential levels ? Should there be one medium or two ? If two, should it be two at all levels ?
2. What should be the language of administration at the national level, at the state level ?

---

*Director, Central Institute of English and Foreign Languages (CIEFL), Hyderabad-500007.

3. How many languages should be taught at the primary, secondary, and tertiary levels ? How should they be ordered ?

These are some of the questions with which language planners have to wrestle and find context-sensitive answers.

For planning the teaching of English in India, one would like to have a clear idea of the value and function that English can and should derive from the philosophy underlying the three language formula. As pointed out earlier, the three languages in our context form a system in which each language is assigned one or more roles and each role represents a grouping of functions. Once a new role is given to a particular language, the roles of the two other languages in the system are bound to be affected. What is role-expansion for one language is role-restriction (actual or potential) for the other language in contact. The Indian linguistic scene clearly demonstrates that attempts to further the use of any language (native or non-native) are considered to be efforts to reduce the political, social, cultural, and economic rights of all or some of the other language groups. The assignment of two important functions to the dominant state language, that is, making it function as the official state language and as the language of instruction, examination and interview upto the highest levels in the state does not simply mean function-reduction in the case of English but also makes us realize that the teaching and learning of English at the tertiary level must be reorganized in terms of its new functions. Some of the important functions are given below :

(i) At the national and international levels English continues to serve as our 'Window on the World' and as our link with the outside world. It will continue to be a source language, providing access to the vast and growing knowledge in the fields of science, technology, medicine, social sciences, management, law and also humanities. Our scientists, technologists, engineers, doctors, economists, and other researchers must be able not only to have access to professional literature in English but also be able to contribute to it and to interact with fellow researchers in the other parts of the world. This has become very important today because English is the main language of transnational and international communication. The continuation of English seems important if our science & technology, trade and commerce, are to be truly international. It is heartening to note that English-based Indian bilinguals constitute the third largest pool of trained & technical manpower in the world.

(ii) As an associate official language, as the official link between the Central Government and the Governments of the non-Hindi-speaking states, as the language favoured by all-India institutions, all-India seminars, workshops, conferences, the legal and banking systems, trade, commerce, and defence, English has important intranational functions.

(iii) It is an important promoter of social mobility for ordinary people; it is also a promoter of geographical mobility. It has been playing an important role in bringing in national unity and integration.

(iv) In certain states and certain disciplines English continues to be the main or associate medium of instruction and examination at the tertiary level.

(v) Where the medium of instruction is some language other than English, our students and researchers find English useful as a 'library language', and a 'language of wider communication'.

(vi) At the individual level (the level of educated bilinguals), English continues to be 'the language of opportunity', 'the language of development', and 'the language of upward socio-economic mobility'. Any individual seeking socio-economic advancement at the national level will find ability in English an asset. Jobs that require interstate movements demand a fairly high level of competence in general and technical English.

With the regionalization of the medium of instruction at the secondary level, a fairly large number of students joining the first year of the undergraduate programme have either no English or little English or frozen English which they do not know how to use. What they need is a special, intensive course in English designed to help them do the tertiary-level courses with a certain amount of confidence. This is one of the reasons why there is a great demand for courses in spoken and written English. Since the public sector has not cared to produce need-based courses, the private sector has stepped in with teaching shops, repair clinics, and an assortment of 'learn-it-fast' courses.

The real challenge facing us today is : vast numbers of students with very inadequate or with very little English, who need to be equipped quickly with different degrees of competence in the use of English. In terms of real national and individual requirements, not all students need English to the same level of competence. It is important that we should be able to identify the English requirements of various groups of students precisely, and try to provide for each such group the pattern of courses that will be relevant to the needs of learners. We may consider the possibility of using 'distance education' (including radio and video lessons) to strengthen our programme. If we don't take effective measures to deal with the situation now, the teaching of English will cease to have any social and economic relevance, and will be reduced to a ritual. What is needed is a set of interrelated activities : analysing learner-needs, designing syllabuses on the basis of needs analysis (keeping in view the notion of 'core' and 'options'), producing teaching materials, reforming the system of evaluation, and organizing orientation and refresher courses for teachers with their focus on teacher development and training related to meaning-making interactional activities in which teachers and learners are both active participants. The ultimate objective of all these activities should be to help learners acquire not only context-governed and syllabus-bound competence in handling English but to attain that level of competence which will enable them to use it with confidence. It is also important that special opportunities are made available to help the weaker sections of our society to acquire an adequate competence in English so that they do not remain for ever disadvantaged in areas of higher education and in terms of upward social mobility. We must take steps to produce methods and materials designed to help students coming from tribal, rural, and other neglected sections of society who, though gifted and intelligent, feel alienated and handicapped at institutions of higher learning because they have not had the opportunity of acquiring English as a second language and hence find themselves incapable of using English as a 'library language'. Here is a great challenge for our educational institutions; they must devise tailor-made programmes in English as an instrument of education.

What we have said is that English performs a set of very important communicative functions in our multilingual setting. This should not make us feel that the Indian languages are meant for a secondary role and cannot function effectively as vehicles of scientific and technological knowledge. We are of the view that no language is inherently incapable of conveying any ideas—be they sublime or mundane, metaphysical or technological. All human languages have the potential for being developed for all the purposes that the human society and the human brain can conceive. They grow and develop by being made to function in newer contexts and newer interactional settings. As a free nation we are committed to the modernization of Indian languages so that they may serve most of those functions for which we now use English. In order to do this we should use English as a 'source' language. The position that we have taken up here is that English and the major Indian languages can and should coexist peacefully and play their roles effectively. These roles will have to be redefined periodically in the light of the changes in the sociolinguistic needs of our country. What a multilingual and pluricultural country like India needs is not just one link language but a chain of mutually enriching link languages : a state-level link language (i.e. the official language of the state), a national link language (i.e. the official language of the country), and an international link language (i.e. English in our context).

C.F.T.R.I. MYSO

India represents a socio-linguistic area with a variety of linguistic and cultural patterns and yet paradoxically enough in the field of language teaching we have been consumers and not producers. We have been exporting our talents and importing 'ready to use' and 'made-to-order' packages based on settings and experiences entirely different from ours. As teachers, material producers and researchers we should make ourselves familiar with the current trends in the field of second/foreign language teaching, but we must have the confidence derived from field experience (that is, experience of teaching English in non-native, multilingual settings) to change, modify, and expand the existing models or to come out with new models on the basis of our needs, our problems and limitations, and the socio-cultural environment in which we are learning and teaching English. ☐

TO OUR READERS

Knowledgeable and perceptive as they are, our contributors must not necessarily be allowed to have the last word. It is for you, the readers, to join issues with them. Our columns are as much open to you as to our contributors. Your communications should, however, be brief and to the point.

THE UNIVERSITY OF ALLAHABAD
A Perspective

K. N. Bhatnagar*

The City—Myth & Legend

Allahabad or Illahabad, the abode of God, the dream of pilgrims, the Mecca of students, from all over India and abroad and the intellectual centre of North India, is situated at the confluence of two holy rivers, the Ganga and Yamuna. The earliest name of Allahabad was Pratistan, and what is left of it is the present Jhusi, on the left bank of Ganga. Pratistan was the capital of Pururavas about 134 generations before Pushya Mitra usurped the throne of Magadha (about 180 B.C.) Pratistan was given to Pururavas by Ikhvaku, King of Ayodhya, through the intervention of Vasistha, the royal priest. The mother of Pururavas was Ili, who was Ila, a prince of Ayodhya before her transformation into a female. Ila while hunting in the forest met Satadyumna, king of a neighbouring kingdom, and in his company Ila developed full feminine qualities before she gave birth to Pururavas.

Due to his unconventional birth, there was a dispute over his inheritance. But through the pleadings of Vasistha on his behalf, Pururavas gained Pratistan. Nahusha, the son of Pururavas, is mentioned in the Vedas, and he is called father of God Agni, by which it should mean, that he advanced the cause of Agni worship. Nahusha's grandson was Yayati, who made wide conquests in all directions especially along the banks of the Ganga and Yamuna. After his death his empire was divided between his five sons. Though, Puru was the youngest, yet being the favourite of the father, he got Pratistan, which included the site of Allahabad on the opposite side of the Ganga. Seventeen generations after him the kingdom was overrun by Sasabindu, a Yadava conqueror, who descended from Yadu, another son of Yayati.

Nothing was heard of the dynasty for 23 generations, until Dushyanta, the hero of Kalidasa's Shakuntala, claimed the royalty of Pratistan. His mother was a descendant of Puru, and he was adopted by king Karandhama of Karusa, who was descended from Turvasu, another son of Yayati. With the help of the Turvasus, Dushyanta obtained Pratistan. At any rate, his son Bharata had his residence on the opposite bank, most probably the present site of Allahabad University.

A satisfactory reason for the change over to the opposite side can be attributed to the river Ganga. The Ganga has been notorious for its waywardness. Through the sandy soil which it flows, it changes its course during the floods. During the days of Bharata, it flowed by the side of Bharadvaj and Nehru's 'Anandabhawan', Bharadvaj, the holy spot which is visited by thousands of pilgrims every year, is reputed to be the residence of Rishi Bharadvaja, who entertained Sri Rama on his way to Dandakaranya.

The city of Allahabad is one of the most ancient cities of India. For the name Prayag occurs not only in the Puranas, but is found even earlier. In the Ramayana, according to the old epic, Rama Chandra was welcomed by the sage Bhardwaja, when he was going to the South, to spend his years of exile. But the most memorable description, certainly the most beautiful, that we get about Prayag in ancient literature, is Kalidasa's description of the Sangama and the *Akshaibat*, in the *Raghuvansha*. As Rama Chandra is coming back with Sita from the South on a Viman, he shows to her the two rivers meeting, and the great *banyan tree*.

"O my beloved, thou with the shining limbs; below us is the great green *banyan rree*, with its red berries like little pieces of rubies scattered over a mound of emeralds. And there, my love, are the dark waves of the Jamuna, mingling with the white waves of the Ganga. And at places it looks like blue sapphires in a necklace of pearls; or like a garland of blue and white lotuses : or even like the mingling of a flock of blue geese with the white geese of Mansarovar; or the chequered play of moonlight through leafy shadows......

A sketch of banyan tree with an inscription around "NOT RAMI TOT ARBORES" is, therefore, the Emblem of the University.

The University

Hundred years ago was passed the Act XVIII

**Joint Secretary, University Grants Commission, Bahadur Shah Zafar Marg, New Delhi-110 002.*

incorporating the University of Allahabad. The Hon. Sir Alfred Comyns Lyall, the Chancellor, addressed the first convocation on November 15, 1887 and in his introductory remarks gave an account of the steps and reasons that led to the establishment of the University. "The Political History of the British Empire in India", he said, "explains why Calcutta started, in educational matters, with such a long lead and why these Provinces have been for the past thirty years, under the central authority of the Calcutta University. To that University the higher education of our people owes much, nor does the present secession in any way diminish our sense of past obligations. It is merely, as I have said, a natural and necessary part of the general process of decentralization."

The first public statement of the possibility of a new university for the upper central region of the country was made on January 26, 1869 at an Agra Durbar on the occasion of the visit of the Duke of Edinburgh, when the Lieutenant Governor spoke of "the projected University of Allahabad". By 1870, it would seem that the scheme had taken concrete form; for, one Mr. H. Tyrell, advertising for a design for the Muir College, described himself as "Secretary to the Committee, Allahabad College and University."

On July 1, 1872, the Allahabad College was formally established and it started functioning in Lowther Castle, now known as Darbhanga Castle, while the work for a permanent building was taken in hand. This building, when finished, came to be known as the Muir Central College. An eminent English Architect, Emerson by name, was its designer, and the college took twelve years to complete and the cost of its construction was about eight lacs and ninety thousand rupees. It should be noted that the Muir Central College was always contemplated as the nucleus of a residential University.

Even before the Muir College came into existence, Sir William Muir had started correspondence with the Calcutta University about a policy of decentralisation. No immediate results followed, but matters were brewing. The Muir College was opened on April 8, 1888, by Lord Dufferin and in a leading article on that occasion, the 'Pioneer' wrote: "The centre of instruction, in the central city of one of the most populous provinces of the Empire, cannot fail shortly to attain, as indeed was almost foreshadowed in the speech of the Viceroy, the honours of a University establishment, and to draw to itself learning and a reputation of learning worthy of the numerous manly races of the North-West." The very next year—on September 23, 1887, to be exact-Act XVIII, incorporating the Allahabad University, was passed.

Step by step, the Allahabad University has evolved, progressed, grown and changed during the last hundred years. Like the Universities of Calcutta, Bombay, Madras and the Panjab, it also started as a "degree-conferring institution" and at the first Entrance Examination, held in March, 1889, candidates appeared from such distant places, as Ajmer, Dewas, Rewa, Jabalpur, Patiala, Nasirabad, Satna and Jodhpur. But after the passing of the Indian Universities Act, the Act VIII of 1904 by a notification, the Governor-General-in-Council specified the territorial limits of the Allahabad University as comprising the United Provinces of Agra and Oudh, the Central Provinces, etc. The University thus served a territorial area of 4,52,830 sq. miles, and a population of about nine crores. The number of students in the colleges of U.P. had increased from 650 in 1888 to 2970 in 1905-6. The Act of 1904 marked an important stage in the evolution and organisation of the University. It laid down definite rules for affiliation and supervision of colleges, and it further empowered the University, "to appoint University Professors and Lecturers, and to make regulations", etc. Between 1887 and 1927, at least 38 different institutions and colleges were affiliated to the Allahabad University—not only the various colleges of this Province but also institutions at places like Bikaner, Nagpur, Ajmer and Indore, etc.

In 1902, the Government of India had sent a circular to all the Governments saying that they were inclined to agree that a Law College should be established at each University centre. This was the origin and the beginning of the present group of English and Law Departments, the Senate Hall, and the Library buildings. The site on Church Road, now Pt. Moti Lal Nehru Road, was chosen in 1909. Sir Swinton Jacob was asked to draw up the plans. These were approved in 1910 and Sir John Hewett, the Chancellor, laid the foundation of the University Senate Hall on January 17, 1910. The approximate expenditure on the three buildings was over ten lakhs. In 1923, the Government decided to acquire the Indian Press Property for the University at about a cost of seven lakhs of rupees and the present History, Politics, Philosophy and Economics Departments are housed in that part.

Reorganisation

The University was fast moving towards the next stage of its development. Her children were now growing up and seeking independence, while she herself was growing more mature, self-contained and self-centered. In 1915, a bill to entablish and incorporate a teaching and residential Hindu University at Banaras was passed. Then followed the incorporation of the Aligarh Muslim University and of the University of Lucknow. Reorganisation of Education was in the air and, at last, the stage arrived which had been visualised by the promoters and founders of the Muir Central College—that the college should grow ultimately into a teaching University.

A Board of High School, and Intermediate Education was established in 1921 and a year later the Reorganised University came into being. The establishment of two more universities, those of Nagpur and of Agra in 1923 and in 1927 respectively, completed the dismemberment of parent body, and the Allahabad University, as a purely teaching and residential Institution, started functioning from 1927.

The Reorganised University entered on its career in 1922. Much had to be done, the task of taking over the tuition and residence of hundreds of undergraduates was stupendous. New departments had to be created—Hindi, Urdu, Civics, Politics, Agriculture, Commerce; the libraries had to be equipped; laboratories set up; and more staff employed. During the first few years, those, who had grown up in the more limited and restricted atmosphere of the Muir Central College, found the atmosphere of the larger institution colder and more arid and cast 'a longing, lingering look behind'. This was inevitable. But as time passed and the strangeness wore off, the new University began to cast its spell on the succeeding generations. In 1922, the University had 846 students on its rolls, in 1937, their number had gone upto 2118, and in 1958, it was over 7000. Unions, associations, clubs, societies of different shades and denominations started springing up in the hostels and in the various departments. In these, groups of students and teachers assembled periodically, and in discussions light and serious, and through activities grave and gay, imbibed the best that at their environment had to give. Some called themselves "The Busy Bees". "The Levellers" "The Revellers" or "The Alphabets"; others assumed the titles of "The Friday Club"; "The Foundation Club", "The August Club", "The Forum" or "The Good Companions". Facilities were available for some military training in the U.T.C. and, after 1942, in the reorganised U.O.T.C. and later still the N.C.C. Life for the young undergraduate became richer and fuller, and education for him meant not only attending lectures or passing an examination, but an all-round development of his mind and personality and character. If the University in some instances did not succeed in achieving this end, it was because of the turmoil inevitable in the struggle for freedom, some values had to be sacrificed at the expense of others. The years that have passed since the reorganisation have been of historic upheavals in India and in the world outside; the reorganised University has come through this period, not without honours, whatever the field.

The amount of work being done in the University itself by its research students, steadily and silently, reveals the tremendous advance made. In 1922, when the University was reorganised, the idea of carrying on research occurred to a very few students; by 1937, the number had risen to 42, while during 1957-58, a hundred and seventy four men and women were engaged in breaking new ground in different directions. At present the research enrolment is more than 1000. When the University celebrated its Diamond Jubilee, messages appreciative of its standing in the world of learning and of its contribution to knowledge poured in from all parts of the world.

Golden Jubilee

It was on December 13, 1937 that the University of Allahabad celebrated its Golden Jubilee under the leadership of Pandit Iqbal Narain Gurtu, its Vice-Chancellor. The functions were attended among others by illustrious leaders and statesmen including Pandit Jawaharlal Nehru, landed magnates, distinguished administrators and businessmen. And there were present also eminent personalities from venerable centres of culture and light, learned delegates from the Universities of Alhazar, Paris, Oxford, Geneva, Istanbul, Berlin, St. Andrews, Aberdeen, Glasgow, Edinburgh, Harvard, Chicago, Dublin, Boston, Illinois, Princeton, Iowa, Michigan, Birmingham, Liverpool, Leeds, New York, California, North Carolina, National University of Ireland and Hawaii. All the Universities of India along with scores of societies, Academies and Commissions, both Indian and Foreign had sent their representatives. Numerous academic bodies, ex-Chancellors and ex-Vice-Chancellors were represented by written messages which were a source of supreme gratification and encouragement. Referring to the spiritual and intellectual attainments of its alumni, the President of Harvard University wrote "We congratulate the University of Allahabad upon its contributions to......leadership not only in the advancement of arts, letters and science, but also in their application to the social and economic needs of a vast population".

At the Jubilee Convocation several distinguished scholars and leaders of thought were admitted to Doctorates Honoris Causa with appropriate references by the Vice-Chancellor. The Rt. Hon. V.S. Srinivasa Sastri, the Hon. Mr. Justice M.R. Jayakar, Col. Kailash Narain Haksar, Hon. Pandit Hirday Nath Kunzru, the Rt. Hon. Akbar Hydri and Babu Rajendra Prasad were admitted to the Degree of Doctor of Laws; Mrs. Sarojini Naidu, Shri S. Radhakrishnan, Babu Bhagwan Dass, Sri C.Y. Chintamani, Sri Sachchidananda Sinha, Rao Raja Shyam Behari Misra, Prof. Abdul Haq, Prof. H.W. Thomas of Oxford, Prof. S.G. Dunn, and the famous poet Mohammad Iqbal to the Degree of Doctor of Letters, and Sri P.C. Roy, Mr. Justice Shah Muhammad Sulaiman, Sir Arthur Stanley Eddington of Cambridge, Prof. V.H. Blackmann of London, and Dr. C.G. Jung, to the degree of Doctor of Science.

The ten years between the Golden and the Diamond Jubilee were a period of agony and disruption for almost the whole world. The struggle for existence became harder; life was complicated by shortage and scarcity and all kinds of controls; and in India, the momentous struggle for freedom became another factor to throw academic pursuits into the background. The University inevitably was affected by the general upheaval, but the authorities at the helm deserve to be congratulated on the way they guided its destinies. Sympathising fully with the aspirations of youth and inspired themselves by similar ideals, they worked unobtrusively, kept their heads cool, and, without, in any way acting as brakes on the country's forward political march, kept alight the torch that shows youth the way to what is permanent and everlasting and above the moment's strife. Enen in this decade the University remained dynamic. enlarging the scope of its activity in new fields, A diploma course in painting was instituted, Geography and Military Science were introduced as new subjects for the degree course, instruction in Experimental and Child Psychology was started, teaching for the degree of Master of Laws was taken in hand, and a new Department of Education to impart instruction for the Master of Education degree was established. Gifts of books were received from the Government of France, the Italian Government and from the Library of Congres, Washington, to stimulate reciprocal interest. Provision for the study of French and German had been made earlier; later Russian and Chinese were also included in the list.

But although the institution had expanded in the range of its activity and in the number of its alumni to many times its dimensions, in 1922, it had not gained proportionately in its finances and the accommodation available for its use. The Jha Hostel was constructed in 1928 and the Women's Hostel was added in 1938.

From 1937 to 1947, the University Library expanded both in respect of physical accommodation and the number of titles. In 1937, the number of books in the Library was 96,191, and the number of journals that it received was 318 of which 282 were subscribed.

Diamond Jubilee

On December 13, 1947 the University celebrated its Diamond Jubilee. The special Convocation was held on December 13, and was presided over by Her Excellency, Shrimati Sarojini Naidu, the Chancellor.

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Messages of goodwill from the Universities in India, Asia, Africa, the U.K., Canada, New Zealand, the U.S.A., and other parts of the world were received. A series of functions, worthy of the occasion, were organized in which the students and staff participated enthusiastically. The enthusiasm was all the greater for that was also the year of India's independence. Honorary degrees were conferred on Hon'ble Pandit Jawaharlal Nehru, Hon'ble Maulana Abul Kalam Azad, H.E. Shrimati Vijaya Lakshmi Pandit, Sri Srinivasa Varadachariar, H.H. the Maharaja of Nepal, H.E. Dr. Kailash Nath Katju, Hon'ble Pandit G.B. Pant, Shri Bidhan Chandra Roy, Shri Jehangir R.D. Tata, Shri Shanti Swarup Bhatnagar, Shri K.S. Krishna, Dr. Mokshagundam Visweswarayya, Prof. Meghnad Shaha, Prof. Birbal Sahni, Hon'ble Shri P.D. Tandon, Rt. Hon'ble Sir Tej Bahadur Sapru, Prof. Amarnatha Jha, Prof. R.D. Ranade, Pt. Gopinath Kaviraj, Sri P. V. Kane, Sri Bimla Charan Law, Sri Mirza Ismail and Prof. D.K. Karve. A fund of over Rs. 24 lacs was collected on the occasion, of which amount much the greater part (72%) was spent on building and equipment for the Science Departments.

After the Diamond Jubilee celebrations of the University in 1947, construction work proceeded on a larger scale. A new hostel was built and named the Diamond Jubilee Hostel. A new building was added to the Muir College Campus and houses the Geophysical Institute. New Blocks were added to the Chemistry, Botany and Zoology laboratories and a new building put up for the Home Science Section. New additions were made to the Stadium. On the Senate House Campus new buildings to be added were a new wing to the Commerce Department, a building to house the Music section and a Guest House. The Delegacy also constructed a Hall to be the Centre of its main activities. Extra accommodation was added to the Women's Hostel.

University Finances

All this development, however, has not kept pace with the growing requirements of the University. More hostels, classrooms, rooms for teachers, recreation and common rooms for students are basic necessities of the University.

In spite of many difficulties and vicissitudes, the University has attracted, year after year in increasing numbers, the cream of the youth of the land, specially from North India. But it has perforce to refuse admittance to numerous aspirants due to lack of space, adequate staff and financial resources. The crying need of the University has, for some time, been finance.

The University Education Commission presided over by Dr. Radhakrishnan (1949), and the Allahabad University Enquiry Committee (1953), both stressed the need of better finances for the University. The establishment of a University Grants Commission by the Central Government on the lines of the British University Grants Committee and a change in the attitude of the State Government in the recent past has eased the situation to a great extent, but by no means, can it be said that the University finances are yet on a satisfactory basis.

In the course of its distinguished history of about a century, the University had to face serious problems, crises and challenges. Its resilience, imagination and determination to fulfil its academic, educational and social goals always helped in overcoming these difficulties. At such significant milestones in its progress viz., the institution of teaching departments in 1906, the reorganisation as a unitary University in 1922, the Golden and Diamond Jubilees in 1937 and 1947 respectively and the Seventieth Anniversary in 1957, it launched successful initiatives to enlarge the scope of its teaching research and extension activities and to usher in a more constructive, meaningful and socially relevant programmes.

Century Old

The University of Allahabad became a century old in 1987. Tais was an event of great historical and developmental significance for it gave the University an opportunity to reflect back on its past and to endeavour to create a new future for itself. Unfortunately during the last fifteen years the University has been in a state of unprecedented and intractable crisis caused by chronic scarcity of resources and lack of timely action. The revolution of rising expectations the spectre of restricted employment opportunities for youth, and the socio-economic backwardness of the region in which it is situated, have created compelling pressure for increased enrolment and despite its best efforts to keep down the number of students the University today has more than 22,000 students on its rolls.

As the funds available to the University have kept much behind the requirement, this has resulted in a serious lack of even the essential academic, co-and extra-curricular, physical and social facilities and amenities in the University. The consequent disaffection and growing paucity of quality workers in all sections of the University community has caused a grave set back to the efforts of the institution to attain its designated objective, and has, indeed, limited its capacity to improvise solutions.

Recognising the long and distinguished service the University of Allahabad has rendered and the potential it has as a seat of learning, the university community has been pressing not only for additional funds to maintain the physical infrastructure but also to start the new teaching departments and Research Institutes. In fact, the University is passing through a great financial crisis. We sincerely hope that the university will tide over these difficulties and once again establish itself as one of the most outstanding universities of India, comparable to Oxford, Cambridge and Harvard Universities as it was some time ago. ☐

The Importance of Being Open

"Your openness is both a challenge and a strength. A challenge, because it is easier behind those walls. A strength, because of the power of the two-way flow between the University and the cultural life of the nation which your openness makes possible. In fact that, in such a short time, and with the need to develop teaching of the highest quality, you have been able to enroll 54,000 students demonstrates how you are already responding to that challenge and building on that strength", observed Dr. Shridath Surendranath Ramphal, Commonwealth Secretary-General while delivering the Convocation Address at the First Convocation of the Indira Gandhi National Open University. Excerpts

There is something different about an open university. The walls of Magdalen College in Oxford, for example, rise toweringly from the pavement. Over the centuries, they have been useful, not just to stop revelling undergraduates, but to preserve the calm needed for dispassionate study within them. None of us would dispute the value of that. But there is another and more negative way of interpreting the symbol. There is a danger that they are seen as barriers to those without the magic key that gives access to learning. Of course not all conventional universities—not Oxford or Magdalen of which I am an Honorary Fellow—turn their backs on the world in the way that those ancient walls appear to imply. Recently, in a Commonwealth setting, we had two examples of just the opposite : sitting side by side, were the Rector of the University of Malta, founded nearly four-hundred years ago with the then eminently functional task of training priests needed in the island, and the President of Laurentian University in Canada, today a pioneer in the equally necessary twentieth century task of offering nursing education at a distance.

For all that, the very term 'open' in your title carries a heavy charge. When she was planning the British Open University, the late Jennie Lee argued that it, and its broadcasts, should be seen not just as a way of producing graduates but as a contribution to the cultural life of the country more generally. An open university is open in the sense that its teaching is open for all to see. No hidden mysteries here. The charge for all concerned with open universities is to demonstrate how the values of a university are relevant not just to scholarship, but to society far more generally. Some words of Mahatma Gandhi in another context seem particularly pertinent here :

> 'I do not want my house to be walled in on all sides and my windows to be stuffed. I want the cultures of all lands to be blown about my house as freely as possible. But I refuse to be blown off my feet by any.'

He could have been speaking of this 'open' University.

You have made a brave start. It is only four years since the Prime Minister announced the establishment of Indira Gandhi National Open University. I know, too, that you have by statute a duty 'based on the rich heritage of the country, to promote and advance the culture of the people of India and its human resources'; and you have specific obligations to raise educational quality as you 'strengthen and diversify the degree, certificate and diploma courses related to the needs of employment' and to widen 'access to higher education for large segments of the population and in particular the disadvantaged groups'. This University has, then, to be open in a second sense : not only open for all to see but open for students who for one reason or another could not hope to gain access to one of the walled institutions.

Your openness is both a chal-

D.Litt. for Dr. Ramphal

Indira Gandhi National Open University conferred the Degree of Doctor of Letters (D. Litt.) (*honoris causa*) on Dr. Shridath Surendranath Ramphal, Commonwealth Secretary-General in recognition of his brilliant academic record and public service, his contribution in forging true internationalism, his stewardship in steering the Commonwealth through difficult times, his zest for the promotion of freedom, peace and security, his efforts for the attainment of political, economic and social justice, his crusade against poverty and human suffering everywhere, his leadership in upholding the dignity of people in every part of the world, and in particular his contribution to the strengthening of distance education by establishing the Commonwealth of Learning.

lenge and a strength. A challenge, because it is easier behind those walls. A strength, because of the power of the two-way flow between the University and the cultural life of the nation which your openness makes possible, The fact that, in such a short time, and with the need to develop teaching of the highest quality, you have been able to enroll 54,000 students demonstrates how you are already responding to that challenge and building on that strength.

I should not, of course, claim that all virtue rests with open universities and none with the more traditional. Indeed, as Chancellor of the University of Guyana, I might be quite unpopular with my Vice-Chancellor if I went that far. And, while it is appropriate to stress what I like to call 'the importance of being open'. I also stress the common values of all universities. In Guyana, last year, in my own Installation Address, I quoted from the Installation Address given at York University in Canada in 1960 by its first President, Dr. Murray G. Ross, who synthesised the fundamental and common purposes of all universities. They bear repeating again here.

First, the commitment to 'a persistent and relentless search for new knowledge, new truth, and new meaning in discovered truth. The unqualified will to know, the insatiable thirst for knowledge, the unrelenting desire to understand': these are characteristics of true academics and the Institutions in which they function.

Second, that a 'modern university must demonstrate a concern for students, a desire to expose them to the greatest civilisations, ideas and ideals of the past, a wish to train their intellectual capacities and to help them differentiate between sense and nonsense'. And now, with knowledge expanding at an explosive rate, to train them in recognising that university graduation is but a first step in a life-long process of education, a process in which a capacity for self-education must be a major goal.

And, third, of course, that these university tasks must be carried out in a context of freedom. Those who do research must be to free pursue disciplined study, however much their study may be thought to threaten the established order. 'Freedom is vital to any university at any time...Whenever it is lost a university has lost its spirit...the delicate life of genius and creativity is snuffed out quickly if social or political pressure, forced allegiance, or conformity is allowed to falter the mind'.

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- Advanced Diploma in Distance Education
- Diploma in Creative Writing in Hindi
- B.Tech, in Water Resources Management & Energy Resources Management
- Certificate in Water Resources Management
- Certificate in Energy Conservation & Management

There is as heavy a responsibility on an open university, and on all who contribute to the political environment in which it functions, to maintain and pursue such fundamental and common purposes, and to do so while having its teaching open for all to see and to share, and its doors open for all to pass through. . . All I need say is that I confidently expect, over the years, to see IGNOU influencing and enriching not just the lives of its own students but the educational structures of India as a whole.

Let me dwell for a moment on this last point. It is obvious that interaction between IGNOU and the conventional universities teaching face-to-face is potentially most fruitful. IGNOU will depend on the strengths of the academic community in India to contribute their expertise and scholarship to its own programmes. Yet, correspondingly, the quality of the materials, which are an essential ingredient of the success of any distance learning system, will in time enhance the quality of learning in colleges and universities throughout India.

This has been the experience in Britain and other countries where students throughout the higher education system have come to value and appreciate the quality of materials prepared by open learning institutions for the independent learner. Beyond that, a wide swathe of the population tunes into sound and television broadcasts targeted on students enrolled in the open university but of much wider interest to the population at large. I am sure that in India, too, the presence of open universities will act as a stimulus and a challenge to the entire higher education system. Through cooperative partnerships and the sharing of resources each sector of higher education—distance education and face-to-face—will achieve more than is possible if each tries to go it alone.

And I underline the important, perhaps vital, point that distance education can be an instrument for development in new areas of science and technology as well as a vehicle for learning of the humanities and social sciences. When we were first trying to get the idea of Commonwealth cooperation in distance education launched a number of Ministers of Education while encouraging the idea, cautioned: 'remember, however, we do not want more unemployed arts graduates'. It was an understandable admonition, even though the pursuit of knowledge for its own sake is not something ever to be despised. For most Commonwealth countries, however, development must be a priority and the technical and scientific transformation of our countries is the road we are obliged to travel.

Many countries have successfully experimented with teaching science and applied subjects through the independent study mode. It needs improvisation and adaptation: for example, with home science kits and simple tool kits, with tutorials in laboratories borrowed from other universities, with short residential courses when those universities are on vacation. It can be done; in many countries, already, a considerable amount of professional updating and upgrading relies on distance education techniques. Both here in India, and in the Commonwealth more widely, one of our most important challenges is bound to lie in the area of science and technology education for distance learners.

When, a few minutes ago, I quoted Dr. Ross's remarks about

INDIRA GANDHI NATIONAL OPEN UNIVERSITY

HIGHLIGHTS

1. Founded in September 1985 to provide opportunities of higher education for all those who for one reason or the other are not in a position to join institutions of higher education.

   The jurisdiction of University encompasses the entire country and it pays special attention to the rural and remote areas.

2. The First Diploma Course in Management and Distance Education was started in January 1987—within just 15 months of the University's inception in 1988. Six more academic programmes have been launched viz. Management Module-II, Certificate in Food and Nutrition, Diploma in Creative Writing, Certificate in Rural Development, B.A. and B.Com.

3. Starting with only 4500 students in 1987, the enrolment now stands at 45,000.

4. To reach out to students everywhere the University has set up 115 Study Centres all over the country, another eight being in the pipeline.

5. 12 Regional Centres have been established to coordinate the work of the study centres.

6. 53 courses have been produced in such diverse areas/disciplines as Mathematics, English, Management, Distance Education, Rural Development, Food and Nutrition, Commerce, Economics, Political Science, History, Sociology, History of Science and Computers.

7. 200 audios and 150 videos have already been produced.

8. The courses are flexible, innovative and inter-disciplinary in nature, and are designed to forge national integration. Flexibility in the programmes provides freedom in the choice of optionals e.g. a student doing Chemistry can also take up Philosophy if he so chooses.

9. Students range from teenagers (18 or 19 to those in their late 70s). The oldest student on rolls is 76 years old. Students come from every sagment of society—employed & unemployed, the urbanite and the rural population — and from professions like peons, daily-wage earners, senior police officials, social workers, general managers, house-wives, professors, a Vice-Chancellor and even a former Union Minister.

10. The University follows a multi-media approach to teaching and uses specially prepared print material and such audio visual aids as audio and video cassettes.

core educational values, I did so because of the profound importance which I am convinced attaches to them and because of the difficulty of sustaining those values in the modern world, not least in developing countries. There, especially, all kinds of pressures militate against the maintenance of standards in centres of educational excellence : the sheer pressure of numbers requiring education; the conflicts of priorities between different sectors competing for scarce resources in the overall battle for development; the strain of keeping abreast with the latest developments in all intellectual fields, when student and staff mobility between institutions of learning across the world, and very much in the Commonwealth, faces powerful obstacles; the high cost of equipment, books and other learning materials. There is no enduring automaticity about standards in education. Standards have to be striven for and, once attained, jealously guarded. A falling-away from the highest standards begins imperceptibly; ultimately the gap between what is and what should be becomes all too apparent. Once such a gap has developed, redress is arduous, for the same reasons why the gap occurs at all—including, of course, that of expense.

The economics of under-development is familiar to all of us, its educational dimension perhaps less so. More than half of the world's forty-one least developed countries have become poorer since 1980; in more than half of them public expenditure per capita has declined since 1980. In more than half of them, not surprisingly, public resources devoted to education have also declined in real terms over the same period. The current economic crisis that faces most developing countries has diminished the educational capacity of many Commonwealth countries and continues to diminish it.

IGNOU International Cooperation

The Indira Gandhi National Open University (IGNOU) has established links with various international organisations in different aspects of the Open University System.

- The cooperation between IGNOU and the Overseas Development Administration of the U.K. includes areas such as consultancy in various aspects of the system, training of IGNOU staff in the U.K. in media and computer equipment, and books & software.
- The Open University of the U.K. and IGNOU have signed a letter of intent for mutual cooperation in various areas of distance education such as curriculum development, development and testing of academic courses, development of administrative and student support systems, research, and other areas of mutual interest.
- The cooperation with the Athabasca University, Canada, has developed into a project under which the two Universities will jointly develop courses in International Marketing and fourth generation computer languages.
- The Japanese International Cooperation Agency (JICA) and the Government of India have signed an agreement under which the Communication Division of IGNOU will get Japanese assistance for media and studio equipment.

That is why I set so much store by open universities, and by our new Commonwealth of Learning. For many countries, the economic realities I have outlined mean that open universities are perhaps the only way of redressing major imbalances at the tertiary educational level. The Commonwealth of Learning will, I feel confident, assist open universities, founded on the principle of reaching many more students, to cast their nets even wider. And it will, I trust, stimulate and facilitate the search for excellence in an age when the explosion of knowledge has made individuals trained to the limits of their capability a nation's greatest resource.

A shared approach to education, indeed a sharing of education, has been one of the most crucial Commonwealth connections. Links in learning have been among the most enduring of all Commonwealth ties. They continue, I believe, to be of pre-eminent importance. That is why we work so hard to enlarge student mobility throughout the Commonwealth; and why I deplore so much the impediments to student interchange that regimes of high overseas student fees have imposed. We must continue to urge the wisdom of policies that positively facilitate such interchange, policies that are in the mutual interest of both sending and receiving countries, and in the longterm interest of the Commonwealth itself. I am glad to say that overseas students in Indian Universities, some tens of thousands of them are not subject to differential fees. May that enlightenment return to richer countries.

But the young generation, young citizens of our contemporary Commonwealth and prospective leaders of it, cannot wait for such change. In their name, which is nothing less than the name of the future Commonwealth, we must act now and recreate those missing educational links, responding in practical ways to the need for university training that are pressingly real and urgent.

The idea of the Commonwealth of Learning is simple : by harnessing communication technology, to widen access to education and to raise its quality. Our long-term aim is the bold one that any learner anywhere in the Commonwealth, from Srinagar in India to Apia in Western Samoa, from Accra in Ghana to Gaborone in Botswana, from Barbados in the Caribbean to Thunder Bay in Canada—anyone anywhere in the Commonwealth, should be able to study any distance teaching programme available from any bonafide college or university in the Commonwealth. To advance towards that goal we have now established the headquarters of the Commonwealth of Learning in Vancouver which is launching its first programmes of work.

It is an exciting venture. First, the Commonwealth of Learning is promoting co-operation in the development and use of teaching materials. For distance education needs recognise no frontiers : if materials are well designed and culturally appropriate then there is no reason why materials designed in Delhi should not be used in Oxford, or Guyana, or vice versa. Second, the Commonwealth of Learning will help and support the development of distance-teaching institutions (like IGNOU) through staff training and information and through the sharing of Commonwealth resources and expertise. Third, in order to facilitate that kind of sharing, it will make a start on the thorny problems of credit transfer, to ease the path of those who want to put together their education and their qualifications from a number of different Commonwealth sources or institutions.

In working out our plans we have drawn deeply on Indian experience and Indian support. We draw inspiration from your SITE and INSAT projects and from their demonstrations that the most advanced communication technology could be used to address the most basic problems of the villages. With you, we have tried to remember that most of the world's population live in villages and have put rural development high on the list of priorities for the Commonwealth of Learning. We were encouraged by the speed with which this University got under way; I hope we can move as fast.

Will it work ? Does it make sense ? Asa Briggs, Chairman of its Board of Governors, has one answer to that. As a social historian with a particular interest in communications, he argues powerfully that we are at a time of convergence between the changing technology of communication and the rising demands for education to which that technology can be made to respond. Made to respond ! It will not happen on its own. Unless education, and all those concerned with human resource development stake their claim, communication technology will be developed primarily in the interest of the market and the interests of the military. It will happen only if the educators seize the opportunities presented by the technologists and make them work.

It is too early to forecast in any detail how the link between this University and the Commonwealth of Learning will evolve : it is only a month since the President took up his post in Vancouver; but preliminary work done by the Secretariat suggests that we may be able to make a start together in three areas.

First, a study carried out by IGNOU staff members showed that, in India, Bangladesh and Sri Lanka alike, there were demands for training for middle-level extension workers. That may be the first way in which the Commonwealth of Learning can gear at least part of its work to the needs of the villages. And, if we can make it work in three countries of this region, we can then build on that experience in other parts of the Commonwealth.

Second, IGNOU has offered to host a meeting to explore pan-Commonwealth co-operation in the training of distance educators. Here, India is leading and we hope you may bring Australia, Britain and Canada with you.

Third, the Commonwealth of Learning will fail if it becomes merely a centralised headquarters office, a glorified post office or telephone exchange. Built into its plans is the idea of regional co-operation and of establishing regional units to promote that co-operation. Clearly this University in New Delhi has to be the location of one of the first of these units as soon as we are able to establish them.

One thing is common to these three first ideas and to those that will follow them ; they are all about a sharing which will benefit both the University here and the Commonwealth of Learning itself—as they will benefit those other colleges and universities around the Commonwealth it exists to serve. ☐

NUCLEAR SCIENCE CENTRE

INTER-UNIVERSITY RESEARCH FACILITY

(An Autonomous UGC Institution)

Advt. No. 1/89

Applications are invited for the undermentioned posts from persons interested in the development of a nuclear accelerator laboratory and associated facilities :

1. **ELECTRONICS ENGINEER** : B.E./B. Tech. in Electrical Engg./Electronics/Instrumentation. Experience in design, development and fabrication of analog/digital circuits. Hardware experience in mini/midi computer will be preferred for two positions.
2. **SCIENTISTS :** M.Sc. (Physics or Applied Physics). Students in the final year can also apply but results must be available before August 1989. Selected candidates will be fixed in a grade after training. During the training period fellowship of Rs. 2,000/- will be given. Persons who got degree before 1988 will not be considered.
3. **TECHNICIANS** : Diploma in Mech. Engg./Electronics/Instrumentation. Experience in development and maintenance of instrumentation or high vacuum systems will be preferred.

SALARY : Depending upon qualification, experience and overall suitability pay may be fixed at any appropriate stage in any of the pay scales mentioned below (Total emoluments with H.R.A. at the minimum scale are indicated within brackets).

1. **Engineers/Scientists** : 2200-75-2800-EB-100-4000 (3256) or 3000-100-3500-125-4500 (4390).

2. **Technicians** : 1400-40-1600-50-2300-EB-60-2600 (2017) or 1640-60-2600-EB-75-2900 (2542) or 2000-60-2300-EB-75-3200-100-3500-(3010) positions carry benefits same as admissible to Central Government Employees. Accommodation, if needed, will be arranged against payment as per Central Government Rules.

PROFORMA FOR APPLICATION

APPLICATION FOR THE POST......

(1) Name in full :

(2) Address :

(3) Date of Birth :

(4) Marital Status :

(5) Educational Qualification : (must give percentage of marks+ board/insti. in each exam. starting from Class X).

(6) Professional Training : (Organisation/Period/Details of training).

(7) Employment Record (in chronological order giving total emoluments) :

(8) A brief resume (200 words) highlighting your experience. Copies of mark-sheets should be enclosed. Incomplete applications will not be considered.

Application typed on plain paper in the given proforma should reach the Director, Nuclear Science Centre, Post Box 10502, New Delhi-110 067 by **March 15, 1989.**

TALLOIRES DECLARATION

45 Vice-Chancellors from all over the globe gathered at Talloires, France at a seminar on the "Role of University in the Nuclear Age" unanimously approved a declaration on the responsibilities of the universities to create awareness of the risks of nuclear age and to reduce those risks. We are pleased to publish the text of the Talloires Declaration for the benefit of our readers.

We, the presidents of 45 Universities from all regions and many cultures of the world, having convened at Talloires, France, believe that the Universities of the world bear profound moral responsibilities to increase understanding of the awful risks of the nuclear age and to reduce those risks. Charged by our societies to prepare our students for life, we are committed as educators to prevent global death.

In a world that is plagued by war, hunger, injustice, and suffering, we believe that universities nurture life through the creation and transmission of knowledge. We join in supporting research and teaching programs that will increase our common understanding of the causes of conflicts and their resolution, the relationship between peace and development, and the sources of injustice and hunger. In so doing, we shall better discharge our responsibilities to educate the men and women who will lead our societies into the twenty-first century.

Although differences in regional perspectives and academic traditions will necessarily create a diversity in our teaching and research, we aspire to a commonality in our educational programs. We hope that the sixty million students and two million teachers engaged in higher education throughout the world will join us in these endeavours.

To achieve these goals, we recognize the importance of the following local, and global measures :

(1) Language, history, culture and methods to create peace must be integral parts of the subjects that we teach. Peace as a concept must be in our students' imaginations, in their intellects and in their lives.

(2) Research and training in this area should incorporate contributions from many fields of knowledge, including the natural Sciences, the humanities, medicine, the social sciences, philosophy, theology, and law. We recognize that many universities have agreed to conduct only research the results of which may be made public, and we encourage this approach.

(3) Universities should support the development of courses and research on arms control, negotiation and conflict resolution, peace and development, and related subjects while providing for the training of teachers and scholars interested in incorporating these topics into their regular courses.

(4) In making every effort to support regional academic associations, universities should encourage the development of regional centres in the organization of research, in exchange of information and curricula, and faculty development in the areas of our concern.

(5) In order to maximize the global impact of local and regional programs, universities should design and implement an international information centre and communications consortium. These facilities will support the exchange of information, provide communications base on relatively low-cost technologies, offer access to computer networks, and afford one and two-way television linkages among university classrooms in various parts of the world, and thereby a truly "global classroom".

(6) In support of these local and regional initiatives, we the Presidents assembled at Talloires have established a coordinating body in the form of the following streering committee :

Yuri L. Ershov, Rector, Novosibinsk University; Eduardo Lopez de La Usa, Rector, University of Madrid; Tatsuro Matsumae, President, Tokai University; Moonis Raza, Vice-Chancellor, University of Delhi; Akilagpa Sawyerr, Vice-Chancellor, University of Ghana; Adele Smith Simmons, President, Hampshire College; Paulo Renato Costa Souza, President, State University of Campinas—UNICAMP; Etienne Trocme, President, University of Humanities of Strasbourg; Xie Xide, President, Fudan University; and Jean Mayer, President, Tufts University, Chairman. □

Biomaterials in Orthopaedics

Artificial knee design still poses very challenging problems to engineers. Although large number of prosthesis are available which allow flexion upto 90 degrees, much efforts are needed to develop prosthesis allowing full flextion upto 165 degrees. Such a prosthesis will permit squatting.

This was the consensus at deliberations held in the two-day international symposium on Biomaterials in Orthopaedics jointly organised by the Institute of Technology and Medical Sciences, Banaras Hindu University. doctors and engineers presented papers on 'bio-materials'.

It was accepted that the application of engineering techniques in the field of medicine and biology is one of the fast growing interest and importance. Virtually all types of engineering can be applied for solving medical problems.

It was felt that Orthopaedics is the largest users of biomaterials. Therefore it is appropriate to look into the short term and long term toxic effects of these orthopaedic implants, viz, metals, nonmetals, glasses, ceramics, carbon, composites and plaster of paris. As far as orthopaedics is concerned special attention is given to the uses of two most versatile materials, composites and polyurethanes. Current available knowledge on fibre-glass (Carbon) implants is very inadequate. All qualities of an ideal implant are not fulfilled even by the best available biomaterial.

The problem of rejection is very common among the rural patients, no matter whatever material is used in the manufacture of artificial aids. This is caused by the uneven terrain. The developing countries are lagging behind : their working techniques yet to be perfected. No single material has been proved to be penacea for the difficulties.

In the symposium importance was laid on non destructive testing. It was suggested that the Bureau of Indian Standards should form a committee of biomedical engineering experts to frame standards for implants and prosthesis.

The participation in the symposium was of all India character. They came from Viklang Kendra, Allahabad, Vikram Sarabhai Space Centre, Trivandrum, Sree Chitra Tirunal Institute of Medical Sciences and Technology, Trivandrum and Hospitals in Delhi, Calcutta, Varanasi, Lucknow, etc.

'Kala Nidhi' Inaugurated

Kala Nidhi, the reference library of the Indira Gandhi National Centre for Arts (IGNCA), New Delhi, was recently inaugurated by the Minister for Human Resource Development, Mr. P. Shiv Shankar. It contains 60,000 volumes, many of which are rare.

The library contains reference material on humanities and arts in the form of rare books, catalogues of manuscripts of Indian and South-East Asian origin, journals and microfilms of unpublished manuscripts and "sound" section with slides, discs and tapes will shortly be opened.

According to Dr. Kapila Vatsyayan, the Member-Secretary, Indira Gandhi National Trust, the continuing effort has been to make available in reprographic form under one roof, material on Indian and South-East Asia from over 3,000 libraries.

Also included in the library are the private collections of four eminent scholars, Dr. Hazari Prasad Dwivedi, Mr. Krishna Kripalani, Professor Suniti Kumar Chatterjee and Mr. Jaidev Singh.

The oldest volume in the library is "The Great Moguls" written in 1671 A.D. Among the other rare books are "The travels of Sir John Charlin", written in 1688, "Journal of a route to Nagpore," "Oriental repertory," James Forbes, "Oriental memories," "An account of the fishes found in the river Ganges" by Francis Hamilton and James Mills' "The History of British India".

Among the rare titles in Professor Chatterjee's collection are "Tamil Lexicon," "Alberuni's India", "A grammar of the Greek language" by Curtious and John Early's "Anglo Saxon literature." The Jaidev Singh collection has works on music and Salvism.

Membership to the Kala Nidhi is restricted to "research scholars of proven capability" and those registered for their Ph.D. and M.Phil. and to those genuinely seeking knowledge.

Cardio-vascular Centre at PGI

The Postgraduate Institute of Medical Education and Research, Chandigarh will shortly add a 200-bed thoracic-cardiovascular centre to meet the growing needs of patients. This was recently stated by Prof. P.L. Wahi, Director of the PGI, while addressing the second annual conference of the Association of Thoracic and Cardiovacular Surgeons of India.

Prof. Wahi also revealed that the PGI now had all the facilities for performing coronary bypass surgery and its surgeons would start operations in due time.

Scores of surgeons, from India and abroad, attended the three-day conference. Dr. Roger Mee, a well known paediatric-cardiac surgeon from Australia, spoke on the surgical management of complex congenital diseases of the heart. He stressed that even newly-born children could be operated upon successfully with modern surgical techniques. Dr. P.J. Molly from New Zealand talked about recent methods of protecting the heart from damage during open-heart surgery.

Dr. Probal Ghosh from Austria discussed his experience with latest techniques of coronary artery surgery. He had used at PGI artery from the abdomen to bypass the block artery of the heart. Dr. Subha Rao from Delhi and his associates presented a paper on "Factors influencing outcome in patients undergoing coronary bypass grafting for unstable angina". Dr. Subha Rao broadly narrated his experiences with 75 people suffering from unstable angina.

About 200 research papers were presented at the conference.

A scientific exhibition was also organised on the occasion.

7 Crore ODA Aid to IGNOU

The British Overseas Development Authority (ODA) is reported to have agreed to provide £3 million (Rs. 7 crore) worth of equipment to strengthen the Indira Gandhi National Open University. The aid, spread over a 5 years period, would be in the form of sophisticated equipment. The ODA would equip the university with full fledged studios, videos, computers and provide consultancy services.

The university, running 53 courses in business management, food and nutrition and rural development, is planning to start shortly courses in early child care, library science, Indian folk dances and B.Tech.

New Courses at SNDT

The SNDT Women's University, Bombay, proposes to start a post-diploma course in catering services and also to upgrade the existing courses in garment technology and interior design to the degree level through a multipoint entry system.

In pursuance of its aim of introducing diversified and need-based programmes of vocational and professional teachings, the university is taking steps to offer such specialised courses as cosmeticology, drug information, and specialised pharmaceutical analysis.

It also proposes to extend its present postgraduate diploma in computer science and applications to the master level.

The university plans to have integrated programmes through courses in electronics and computer and also in areas like biotechnology and environmental science.

National Testing Scheme

The University Grants Commission (UGC) proposes to introduce a national testing scheme, conducted by a central agency, for all lecturers applying to colleges and universities anywhere in the country. Only those who qualify the test will be eligible for jobs as lecturers. The scheme will reportedly come into effect from the next academic session.

The results will be valid for five years with the option of reappearing in the test also being kept open. The test is likely to be split into sections with the All-India Council for Technical Education holding the engineering exam, CSIR taking care of the pure sciences and the UGC, the humanities and sciences tests.

Presently, the minimum qualification for the job of a lecturer is an M.A. with 55 per cent marks. It is hoped the proposed National Testing Scheme would ensure a certain standard of teaching in the country.

New Centres at Pondy Varsity

The Union Government is reported to have sanctioned the setting up of a Rs. 8 crores centre for laser studies in the Pondicherry central university.

The Indian Institute of Geomagnetism is also reported to have selected the university for the setting up of a centre for geomagnetic observation.

UGC Scholarship

The University Grants Commission (UGC) is reported to have selected 834 scholars for the award of junior research fellowship in various disciplines in the faculties of Social Sciences and Humanities including languages.

The selected candidates would be eligible for being considered for the award of fellowships by the universities up to the 1990-91 academic session. To begin with, the value of the fellowships is Rs. 1,800 per month.

The UGC conducted its junior research fellowship examination in September 1988 in which a total of 12,708 candidates appeared from 81 centres all over the country.

News from Abroad

Computing Research Costs

Universities in the United Kingdom should charge a "realistic market price" when they carry out contract research for industry or government, according to a recent report published by the U.K.'s Committee of Vice-Chancellors and Principals (CVCP).

The report, which contains new guidelines for the universities on the costing of research projects, says that industry and government have been getting research done at bargain prices because overhead research costs are not fully recovered. This "subsidy" costs U.K. universities the equivalent of $84 million, the CVCP notes.

Under existing CVCP guidelines most British universities charge overhead costs at a rate of about 40 per cent of the total direct costs. The new guidelines recommend they begin charging all direct and indirect costs, including the salaries of all academic, research, technical and support staff involved as well as the full costs of all capital items and space and equipment used. Universities should also charge for the use of library and computer facilities.

The report notes that the costs of basic or strategic research in which universities themselves may have long-term interests could be shared between university and industry. Research conducted for charities or funded by research councils is not affected by the new guidelines, since overheads are deemed covered by other government funding.

The CVCP established a working group to look into the issue of research overheads in 1987 because it was concerned that inadequate provision for cost recovery was "seriously weakening" the universities' teaching and basic research abilities. The group consulted widely with industry and government before issuing its guidelines, which have the backing of the CVCP, industry and government.

"Both industry and government will gain from the improved management of projects, while the universities will be able to manage their resources in a way consistent with their main responsibilities, which are teaching and research", says Harry Hanham. Vice-Chancellor of Lancaster University and Chairman of the committee that produced the report.

The report also warns universities that they will have to provide professional management for research projects and deliver results on time if they intend to charge commercial prices for contract research.

Communication

AUTONOMY IN ACTION

Sir,

The University College for Women (Autonomous), Hyderabad, has approached implementing "Autonomy" from different angles. One is to restructure the existing conventional degree courses of study, through modifying the syllabi and strengthening the same. Second, to start short term job oriented Diploma or Certificate Courses after regular college hours, to cater to the needs of the women in general in the community. This is an academic approach, to extending education of various durations to women of different age groups in the community. The exercise in this area is going on.

All the students admitted to the first year Courses in 1988-89 were required to meet the Principal/Senior teachers along with their parents/guardians before the admission was finalised. This meeting was to involve parents in the thinking and planning of the career of the young student joining the College and also to keep track of the students' participation and progress in College both academic as well as in co-curricular activities.

Young girls of today are facing many problems, social, economic, domestic and so on. The College is anxious to provide proper moral support through counselling and guidance to the needy students. While there is an identified group of teachers to function as Counsellors and guiders with the Principal as the leader, it is proposed to prepare every teacher to perform this function by exposing all the teachers to an Orientation Programme to be held in March '89. A woman Lawyer from the State's free legal aid cell is nominated to the Academic Council so that a girl in need can take advantage of free legal aid also.

It is realised that there are two major constraints to women coming into the mainstream of development in the country and they are, child bearing and child rearing. Through the newly granted autonomous status our College has worked out certain arrangements to minimise the impact of these constraints. A married student is eligible for six weeks maternity leave, once during the 3 year degree course, in calculating her attendance for examination. This pro-women concession is provided by the Osmania University in its revised rules, which is applicable to our College also. In continuation of this, the College has started a "Creche" within the Campus to enable young mothers, both students as well as staff to carry their kids along to the College. This arrangement is visualised to relieve the mothers from mental tensions involved in child rearing particularly in the nucleus family system of today. The institutional gain in this is reduction of absenteeism and improvement in performance in the College.

Yours etc.
S. Saraswathy Rao
Principal,
University College for Women
(Autonomous)
Koti, Hyderabad-500 001

Orientation-cum-Training Programmes

AIU

Under its continuing programme of seminars, group discussions and orientation programmes for educational administrators, the Association of Indian Universities will organise a five day Orientation-cum Appreciation Programme on the **'Use of Computers in Educational Administration and Management** from 27-31 March, 1989 at the Indian Institute of Public Administration, New Delhi. The following topics have been tentatively listed for discussion at the programme :

Computer concepts; Software Packages: Computers in administration; Information needs of educational institution and data organisation: Computers in Financial Management; Role of Computers in Library Administration; Computers in Management of Examinations/Examiners; Use of Computers for Career Development & Employment; Inventory Control with the help of Computers; Role of Computers in rationalisation of Forms and Records; and Computers in the service of Public Relations.

The morning sessions will be confined to lectures and discussions while the afternoon sessions will be devoted to practical demonstrations to give the participants a feel of the computers and allow them the opportunity to acquaint themselves with the latest techniques and methodologies. The faculty is proposed to be drawn from the Computers Society of India, industry, Institutes of computers and informatics and other training centres and educational institutions. The registration fee for the programme is Rs. 2000/- per participant. Last date for receipt of nominations together with the registration fee is March 4, 1989.

Further details can be had from Mr. Anjni Kumar, the Course Director and Additional Secretary, Association of Indian Universities, 16 Kotla Road, AIU House, New Delhi-110 002.

Panjab University

The Centre for Work Study in Educational Administration of the Panjab University, Chandigarh has announced its training programmes for the academic session 1989-90. Amongst the programmes to be conducted are Management of Disciplinary Proceedings, Computers in Educational Administration, Records Management and Filing System, Management of Accounts, Effective Office Supervision, Effective Office Support, Project Management, Effective Writing Skills, Administrative Analysis and Improvement, etc.

Further details in respect of each of the courses like its duration and the fees payable can be had from Shri Shital Parkash, Honorary Director, Centre for Work Study in Educational Administration, Panjab University, Chandigarh.

USEFI

The United States Educational Foundation in India (USEFI) will sponsor a one week course on American Government and Foreign Policy for teachers and research scholars of Political Science at American Studies Research Centre, Hyderabad, from 7-13 May, 1989. The Foundation will provide to each participant first class return fare by rail from their Home town to Hyderabad and back. Boarding and lodging arrangements will be made by the Foundation. In addition each participant will be paid Rs. 75/- for incidental expenses. Teachers and Research Scholars below 40 years of age and doing research in the area of American Government of Foreign Policy will be preferred. Last date for receipt of sponsorship together with the Registration fee of Rs. 100/- is March 13, 1989. Further details can be had from the U.S. Educational Foundation in India, 12 Hailey Road, New Delhi- 110 001, or its following regional offices :

Eastern Region

The USEFI
Regional Office,
Flat No. 2. Park Mansion
57 Park Street,
Calcutta 700 016

Western Region

The USEFI
Regional Office,
Sundeep, 4 New Marine Lines,
Bombay 400 020

Southern Region

The USEFI
Regional Office,
American Consulate Bldg.
Mount Road
Madras 600 006

News from UGC

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"Comet"
"Demography, Population Study—I"

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"Handicrafts of Andhra Pradesh—III Etikoppakka Toys & Dolls"
"Is Peace Breaking Out"
"Elders Recall Dr. Radhakrishnan's Contribution"

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RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Sociology

1. **Ahirwar, Komal Prasad.** *Ekikrit grameen vikas pariyojna ka do gramon ke vyaktiyon ke samajik arthik jeevan per prabhav : Damoh vikas khand ke sandarbh mein.* HS Gour. Dr. Diwakar Sharma, Department of Sociology, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

2. **Hingwe, Dhanlal.** *Korku Janjatiyon mein audyogikaran kee disha evam prabhav.* HS Gour. Dr. S.N. Sharma.

3. **John, Usha.** *A psycho-social study on retirement.* Kerala. Dr. (Fr.) E.J. Thomas, Lecturer-in-Charge, Loyola College, Trivandrum.

4. **Thomas, T.S.** *Study on the manifestation of work strength among executives.* Kerala. Dr. Mariamma Joseph, Prof., Loyola College of Social Sciences, Trivandrum.

Economics

1. **Ahuja, Kanhiyalal.** *Tribal marketing in South West M.P.* Devi Ahilya. Dr. (Smt.) T.K. Vajdi, Reader, Department of Economics, Devi Ahilya Vishwavidyalaya, Indore.

2. **Anithakumari Amma, L.** *Bank credit and economic growth in Kerala.* Kerala. Dr. G. Karunakaran Pillai, Reader, Department of Economics, University of Kerala, Kariavattom.

3. **Bhatia, Meena.** *Commodity taxation in M.P.* Devi Ahilya. Dr. (Smt.) Nirupama Nagar, Asstt. Prof., Department of Economics, P.M.B. Gujarati Arts and Law College, Indore.

4. **Dalal, Mona Rajendra.** *Security schemes for social industrial workers : A case study of Employees' State Insurance Scheme in Madhya Pradesh.* Devi Ahilya. Dr. (Smt.) Nirupama Nagar, Asstt. Prof. Department of Economics, P.M.B. Gujarati Arts and Law College, Indore and Dr. B.S. Bhandari, Department of Commerce, Govt. Arts and Commerce College, Indore.

5. **George, Lizzie.** *Economic performance of the capital goods industry in India : A case study of the Thermal Power Equipment Sector.* Kerala. Dr. E.T. Mathew, Prof. and Head, Department of Economics, University of Kerala, Kariavattom.

6. **Joseph, M.S.** *Determinants of production and acreage shifts in coconut cultivation.* Kerala. Dr. K. Ramachandran Nair, Reader, Department of Economics, University of Kerala, Kariavattom.

7. **Kumath, Usha.** *Madhya Pradesh ke grameen vikas mein kshetriya grameen bankon ka yogdan : Kshetriya Grameen Bank ka vishesh adhyayan.* Devi Ahilya. Dr. M.V. Kapde, Prof., Department of Economics, Devi Ahilya. Vishwavidyalaya, Indore.

8. **Maheshwari, Aparna.** *Development lag-in scare resource regions of Madhya Pradesh.* Devi Ahilya. Dr. V.D. Nagar, Head, Department of Economics, Devi Ahilya Vishwavidyalaya, Indore.

9. **Maheshwari, Nand Lal.** *Regional rural banks and rural developments in Madhya Pradesh.* HS Gour. Dr. M.L. Tripathi, Reader, Department of Economics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

10. **Mathew, Thampi.** *Urban finances.* Kerala. Dr. K. Ramachandran Nair, Reader, Department of Economics, University of Kerala, Kariavattom.

11. Saralamma, M.K. *Socio economic facilities of fertility decline : A case study of Kerala.* Kerala. Dr. P.R. Gopinathan Nair, Prof., Department of Economics, University of Kerala, Kariavattom.

12. Savajiani, Manoj. *Production and marketing of bidi in Madhya Pradesh.* Devi Ahilya. Dr. (Smt.) T.K. Vajdi, Reader, Department of Economics, Devi Ahilya Vishwavidyalaya, Sagar.

13. Saxena, Madhulata. *Madhya Pradesh ke Pashchimi adivasi kshetra mein adivasi mahila rojgar ka arthik, samajik yogdan.* Devi Ahilya. Dr. S.S. Panwar, Coordinator, Minority Cell, Devi Ahilya Vishwavidyalaya, Indore,

14. Saxena, Manjusha. *Madhya Pradesh mein cheeni udyog : Ek arthik vishleshan.* Devi Ahilya. Dr. (Smt.) Nirupama Nagar, Asstt. Prof., Department of Economics, P.M.B. Gujarati Arts and Law College, Indore.

15. Sepaha, Prabal. *Growth centres of Malwa Region.* Devi Ahilya. Dr. (Smt.) T.K. Vajdi, Reader, Department of Economics, Devi Ahilya Vishwavidyalaya, Indore.

16. Shukla, Anjana. *Devi Ahilya Vishwavidyalaya mein uchch shiksha ka lagat labh vishleshan.* Devi Ahilya. Dr. (Smt.) S. Mahalati, Lecturer, Department of Economics, Devi Ahilya Vishwavidyalaya, Indore.

17. Singh, Bhavna. *Growth and pattern of General Insurance investments in M.P.* Devi Ahilya. Dr. V.D. Nagar, Head, Department of Economics, Devi Ahilya Vishwavidyalaya, Indore.

18. Sood, Shyam. *Madhya Pradesh mein sakh ka prabandh : Madhya Pradesh Rajya Sehkari Bank ke vishesh sandarbh mein.* Devi Ahilya. Dr. V.D. Nagar, Head, Department of Economics, Devi Ahilya Vishwavidyalaya, Sagar.

19. Trehan Alpana. *Dryland technology and its impact on rural economy of Madhya Pradesh, 1970 to 1987 with special reference and study of Indore District.* Devi Ahilya. Dr. (Mrs.) S. Mahalati, Lecturer, Department of Economics, Devi Ahilya Vishwavidyalaya, Indore.

Law

1. Param Jeet Singh. *A critical study of the law of preventive detention in India with special reference to its operation in the State of Panjab.* Panjab. Prof. V.K. Bansal, Department of Law, Panjab University, Chandigarh.

Public Administration

1. Dinesh Chandra. *Government policy and administration with regard to the rural money market in Punjab since 1970.* Panjab. Dr. B.S, Ghuman, Department of Public Administration, Panjab University, Chandigarh.

Education

1. Agarwal, Pushpa. *A longitudinal study of perceptual maturation process in relation to sex, socio-economic background and intelligence of 5-7 years.* HP. Dr. S.S. Chauhan, Department of Education, Himachal Pradesh University, Shimla.

2. Solomon, R. Vigi Thampy. *Development of problem based awareness education programme for adults of minority groups in Kerala.* Kerala. Dr. Mercy Abraham, Reader, Department of Education, University of Kerala, Trivandrum.

Commerce

1. Rupanawar, V.D. *A study of agricultural marketing. Impact on rural development : Case study of matepute market—Agri.* Shivaji. Dr. V.V. Khanzode, Chh. Shahu Central Institute of Business Education and Research, Kolhapur.

HUMANITIES

Philosophy

1. Parvathi Devi, R. *The caste system—Varna vyavastha—in Indian society : A philosophical analysis.* Kerala. Dr. E.I. Warrier, Prof. and Dean, (Retd.) TC 15/396, Jaya Mansion Compound, Vellayambalam, Trivandrum.

Fine Arts

1. Gurpreet Kaur. *Dr. Lalmani ke vyaktitva evam krititva ka sameekshatmak adhyayan.* HP. Dr. Indrani Chakravarti, Department of Performing Arts, Himachal Pradesh University, Shimla.

Music

1. Dharmani, Nalini. *The role of All-India Radio in popularising Indian classical music.* HP. Dr. Indrani Chakravarti, Department of Performing Arts, Himachal Pradesh University, Shimla.

2. Manchu, K.S. *Group kritis of trinitis.* Kerala. Dr. B. Pushpa, Lecturer, Department of Music, Government Women's College, Trivandrum.

3. Paramjit. *A critical study of factors effecting music learning and musical achievement of students at college level with special reference to Himachal, Panjab and Haryana.* HP. Dr. Manorma Sharma, Department of Performing Arts, Himachal Pradesh University, Shimla.

Dance

1. Sharma, Jagreeti. *Himachal Pradesh ke nrityon mein nari : Vishleshnatmak adhyayan.* HP. Dr. Indrani Chakravarti, Department of Performing Arts, Himachal Pradesh University, Shimla.

Language & Literature

English

1. Ketkar, S.P. *The images of women in Australian and Indo-Anglian women novelists : A comparative study.* Shivaji. Dr. V.V. Badve, Department of English, Shivaji University, Kolhapur.

2. Margret, P. Annie. *The search for identity in Ralph Ellison and James Baldwin.* Kerala. Dr. V. Rajakrishnan, Reader, Institute of English, University of Kerala, Trivandrum.

Hindi

1. Shrivastava, Rashmi. *Gandhivadi jeevan mulyon ke sandarbh mein Yashpal ke sahitya ka adhyayan.* HS Gour. Dr. Suresh Acharya, Reader, Department of Hindi. Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

2. Vyas, Bharati. *Agyeya kee gadya rachnayon mein vyakt jeevan drishti aur unmein swarup ka anusheelan.* HS Gour. Dr. Govind Dwivedi.

Urdu

1. Mohammad Ashfaque Arif. *Jagat Mohanlal Rawan aur unki shairi.* HS Gour. Dr. M.S. Siddiqui, Department of Urdu and Persian, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

Tamil

1. Selvaraj, P. *Chavittunatakom—a survey and study.* Kerala. Dr. P. Doctor Nazeemdeen, Lecturer, Department of Tamil, University of Kerala, Kariavattom.

Malayalam

1. Venugopal, K.M. *Symbolism in modern Malayalam poetry.* Kerala. Dr. K. Ramachandran Nair, Prof. and Head, Department of Malayalam, University of Kerala, Kariavattom.

History

1. Ahirwar, Ashok Kumar. *Dr. Ram Manohar Lohia : Ek etihasik sarvekshan.* HS Gour. Dr. B.B. Srivastava, Department of History, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

2. Ajit Kumar, E. *Growth and consolidation of British power in Travancore 1784-1814.* Kerala. Dr. V. Sankaran Nair, Institute of Management in Government, Trivandrum.

3. Alexious, T.A. *Anglo-Dutch relations on the Malabar Coast in 17th and 18th centuries.* Kerala. Dr. M.O. Koshy, Meelamannil House, Karakkal P.O. Thiruvalla.

4. Babele. Behari Lal. *Lalitpur Janpad kee prachin moorti kala ka adhyayan.* HS Gour. Dr. S.D. Mishra, Reader, Department of Ancient Indian History, Culture and Archaeology, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

5. Choubey, Ashwani Kumar. *Bhakti andolan evam Bundelkhand.* HS Gour. Dr. H.P. Pathak, Department of History, Govt. Girls College, Sagar.

6. Choudhary, Sumat. *Vidisha kshetra kee shailgrahin chitrakala ka adhyayan.* HS Gour. Dr. S.K. Pandey, Reader, Department of Ancient Indian History, Culture and Archaeology, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

7. Dahariya, Raj Kumar. *Swargiya Dr. E. Raghvendra Rao ka Bhartiya swatantrata sangram mein yogdan.* HS Gour. Dr. B.B. Srivastava, Department of History, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

8. Dass, Chappl. *Hoshangabad Jile ka samajik evam sanskritik jeevan, 1818-1984.* HS Gour. Dr. G.S. Tripathi, Reader, Department of History, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

9. Dharam Prakash. *A study of the temples of Hattkoti Region.* HP. Dr. A.R. Khan, Department of History, Himachal Pradesh University, Shimla.

10. Dube, Mahesh. *Bhopal ka nagariya itihas, 1948 se 1956 isvi tak.* HS Gour. Dr. D.B. Trivedi, Reader, Department of History, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

11. Haldulkar, Kavita. *Chhindwara Jile mein Protestant Isai Mission kee gatividhiyan, 1878 se ab tak.* HS Gour. Dr. M. Biswas, Danielson College, Chhindwara.

12. Hanmane, V.N. *The Daphales of Jath.* Shivaji. Dr. B.D. Khane, Department of History, Shivaji University, Kolhapur.

13. Jadia, Jagdish Kumar. *Bundelkhand ka arthik itihas, Isa 300 se 650 tak.* HS Gour. Dr. S.D. Mishra, Reader. Department of Ancient Indian History, Culture and Archaeology, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

14. Jherwar, Seema. *A decade of political turmoil in Madhya Pradesh : A political analysis of events from 1956 to 1966-67.* HS Gour. Dr. B.N. Sharma, Prof. and Head, Department of History, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

15. Kochar, Ram Sarup. *Indian National Congress and socialism, 1947-1977.* HP. Dr. S.K. Gupta, Department of History, Himachal Pradesh University, Shimla.

16. Manohar Lal. *Education : Role of Arya Samaj in Punjab, 1886-1947.* HP. Dr. S.K. Gupta, Department of History, Himachal Pradesh University, Shimla.

17. Nayak, Pushpa. *Adhunik Bharat ke nav nirmata Pt. Nehru.* HS Gour. Dr. N.P. Pathak, Govt. Girls College, Sagar.

18. Noorjam Beevi, M. *Socio religious movements among Mappila Muslims of Kerala.* Kerala Dr. A.P. Ibrahim Kunju, Prof. (Retd.), Rail View, Kaniyapuram.

19. Patel, Mona. *Role of extremists in India's freedom struggle with special reference to Aurobindo.* HS Gour. Dr. G.S. Tripathi, Reader, Department of History, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

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21. Pathania, Naresh. *Delhi Rulers and the Deccan : The nature of relationship, 13th to 16th century.* HP. Dr. M.S. Ahluwalia, Department of History, Himachal Pradesh University, Shimla.

22. Prabha, D. *Annie Besant : Home Rule Movement in Madras Presidency, 1914-19.* Kerala. Dr. V. Sankaran, Institute of Management in Government, Trivandrum,

23. Rajput, Naresh Kumar. *Some aspects of social legislation in Central Province, 1946-56.* HS Gour. Dr. D.B. Trivedi, Reader, Department of History, Dr. Hari Singh Gour Vishwavidyala, Sagar.

24. Sarabjeet Singh. *Dakshin Kaushal kee nag pratimaon-tatha parampara ka vishleshan.* HS Gour. Dr. S.N. Manwani, Department of Ancient Indian History, Culture and Archaeology, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

25. Sharma, Bhagwat Swaroop *Madhya Pradesh ke doosre Congress Mantrimandal kee uplabdhiyon ka mulyankan, 1946 se 1952.* HS Gour. Dr. M.P. Pathak, Govt. Girls College, Sagar.

26. Singh, Achala Pal. *Medieval Himachal Pradesh and outside powers : A study of political relation of Himachal chiefs with muslims, sikhs and gurkhas, 1206-1846.* HP. Dr. M.S. Ahluwalia, Department of History, Himachal Pradesh University, Shimla.

27. Sodia, Chandra Bhan. *Dr. Bhimrao Rayjee-Ambedkar : Vyaktitva evam krititva, ek etihasik adhyayan.* HS Gour. Dr. D.B. Trivedi, Reader, Department of History, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

28. Subhash Chander. *Mughal architecture in the Punjab, 1526-1707 A.D.* HP. Dr. M.S. Ahluwalia, Department of History, Himachal Pradesh University, Shimla.

29. Tandon, Pramod. *Holkar Rajya mein sthapatya kala : Ek adhyayan.* Devi Ahilya. Dr. B.K. Panjabi, Coordinator, N.S.S., Devi Ahilya Vishwavidyalaya, Indore.

30. Trivedi, Ranjana. *Puranon ka rajdharam.* HS Gour. Dr. R.N. Agarwal, Department of Ancient Indian History, Culture and Arachaeology, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

31. Udayakumari S. *History of Church of South India in Kerala.* Kerala. Dr. N. Sasidharan, Prof., M.G. College, Trivandrum.

32. Yadav, Badri Prasad. *Sagar Jile mein sthaniya swaytta sansthaon ka vikas, 1867-1950.* HS Gour. Dr. D.B. Trivedi, Reader, Department of History, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

33. Yadav, Ram Swaroop. *Hamirpur Jile mein swatantrata andolan, 1920 se 1947 isvi tak.* H.S. Gour. Dr. B.B. Srivastava, Department of History, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Library Science

1. Satnam Singh Pal. *Development of a model for university archives in India.* Panjab.

Psychology

1. Bakshi, Radha Pyari. *Work alienation : A motivational approach* : IIT Delhi. Prof. (Mrs.) Purnima Mathur, Department of Humanities and Social Sciences, Indian Institute of Technology, New Delhi.

2. Chauhan, Madhu Bala. *A study of certain social and motivational aspects of aggressive behaviour among school children.* Aligarh. Prof. Afzal Qureshi, Reader, Department of Psychology, Aligarh Muslim University, Aligarh.

3. Cooper, Roseline. *A comprative study of psycho-motor-social functions among boys and girls of nursery schools.* Rohilkhand. Dr. R.K. Tandon, K.G.K. College, Moradabad.

4. Gupta, Rashmi. *A study of marital locus of control, social intimacy and approval motivation among adjusted, maladjusted married couples.* Aligarh. Dr. Akhtar Husain, Lecturer, Department of Psychology, Aligarh Muslim University, Aligarh.

5. Kannampuzha, George Jose. *Crowding and environment : A study on the determinants of crowding behaviour in residents of single room housing units in Bombay and Calcutta cities.* Calcutta.

6. Lather, Anu Singh. *A study of drug abuse among students in relation to personality parental attitudes and socio economic status.* Panjab.

7. Rasquinha, Leontine M.P. *A tool to assess marital family therapy.* Bangalore. Dr. G. Nardev, Assoc. Prof., Department of Psychiatric Social Work, National Institute of Mental Heal th and Neuro Sciences, Bangalore.

8 Saxena, Shobhna. *A comparative study of high and low inferiority groups with respect to 16 personality factor.* Rohilkhand. Dr. R.K. Tandon, K.G.K. College, Moradabad.

9. Sengupta, Sankarkumar. *A study of entrepreneurical success and some associated psychological and social variables.* Calcutta.

10. Singh, Uma Pati. *Political maturity of college students in relation to some socio-psychological variables.* Magadh.

11. Tyagi, Pratibha. *Anxiety, inferiority, loneliness and depression among adolescent boys and girls of different economic status.* Rohilkhand. Dr. R.K. Tondon, K.G.K. College, Moradabad.

Sociology

1. Kanphade, Anil Bajirao. *A study of role and role conflict of supervisors in the textile industry in Vidarbha.* Nagpur. Prof. M.R. Deshmukh, D.K. Shinde School of Social Work, Shivaji University Road, Kolhapur.

2. Mitra, Meera. *Migration of Indian professionals to the U.S.A.* Delhi.

3. Mohammed Peer. *Religion and education : A study of Muslim Community in Bangalore City* Bangalore. Dr. C. Rajagopalan, Head, Department of Sociology, Bangalore University, Bangalore.

4. Sahoo, Bijaya Kumar. *Demographic characteristics among slum dwellers of Jabalpur City with special reference to fertility, mortality and migration.* Durgawati. Dr. R. K. Gupta. E-55 DDA Flats, First Floor, Near Press Enclave, Saket, New Delhi.

Social Anthropology

1. Singh, Haobam Borobabu. *The early Meitei State and its formation : An ideological model.* Manipur. Dr. Ch. Budhi Singh, Assoc. Prof., Department of Anthropology, Manipur University, Imphal.

Political Science

1. Bhattacharya, Purushottam. *Britain in the European Community, 1973-82.* JNU. Dr. B. Vivekanandan, Centre for American and West European Studies, Jawaharlal Nehru University, New Delhi.

2. Chattopadhyay, Amal. *Dr. Bhupendranath Datta and his study of Indian society.* Burdwan. Prof. Amal Kr. Mukhopadhyay, Visiting Prof., Department of Political Science, University of Burdwan, Burdwan.

3. Chattopadhyay, Gautam. *Arms, alliances and foreign policy : A study of Pakistan as a factor in Indo-US relations.* Rabindra Bharati.

4. Chaturvedi, Archana. *Development performance and perception : A case study of a backward minority community in Delhi.* Delhi.

5. Gassah, Lovingson. *A study of emerging political system and its effects on traditional leadership in Jaintia Hills of Meghalaya.* NEHU. Prof. B. Pakem, Department of Political Science, North Eastern Hill University, Shillong.

6. Ghosh, Kajal Kr. *Administrative relations between the Centre and the States : A study of some emerging tension areas.* Burdwan. Prof. Shyamal Kr. Roy, Department of Political Science, University of Burdwan, Burdwan.

7. Jagpal Singh. *Changing agrarian relations and politics in Western Uttar Pradesh : A study of Meerut District, 1952-85.* JNU. Dr. Zoya Hasan, Gentre for Political Studies. Jawaharlal Nehru University, New Delhi.

8. Jain, R.K. *Bharatiya Samvidhan ke antargat janpratinidhiyou ke visheshadhikaron ka alochanatmak adhyayan.* Barkatullah. Dr. K.G. Shah, Prof. and Head, Department of Political Science, SSL Jain College, Vidisha.

9. Jain, Satish Kumar. *Madhya Pradesh mein rajkiya, vyaparik evam audhyogik nigam : Unke sangathan, prabandh, karya ka ek alochanatmak adhyayan.* Barkatullah, Prof. J.P. Dubey, E1/26, Arera Colony, Bhopal.

10. Joshi, Manohar Ramchander. *Mahatma Gandhi aur Bharatiya samajvadi vichar dhara.* Vikram. Dr. B.R. Sadha, Near Hardia Compound Mission Hospital, Indore.

11. Khondkar, Nuruddin Jehangir. *Socio economic and political status of Muslim women in West Bengal : A case study of Murshidabad.* Calcutta.

12. Krishna Kumar. *The Enlarged map of Bihar : The politics of merger.* Magadh.

13. Mahapatra, Chintamani, *An evolution of patron-client relationship : A study of United States-Philippines strategic relations.* JNU. Prof. M. S. Venkataramani, Centre for American and West European Studies, Jawaharlal Nehru University, New Delhi.

14. Prajapati, G. D. *Chhatarpur Jile mein nagarpalika prashasan ka sookshma adhyayan.* Awadhesh. Dr. S.P. Dubey, Assoc. Prof., Maharaja College, Chhattarpur.

15. Raghav, Jagvir Singh. *Rajasthan kee rajaniti mein arthik dabav samuhon kee bhumika.* Vikram. Dr. (Smt) Rashmi Shrivastava, Reader, Department of Political Science, Vikram University, Ujjain.

16. Ray, Asitananda. *The psychological politics of Graham Wallas,* Calcutta.

17. Sahu, Ramesh. *Bharat-Soviet maitri sandhi ke antargat dwipakshiya sambandhon ka alochanatmak adhyayan, 1971 se aaj tak.* Barkatullah, Dr. K.G. Shah, Prof., Department of Political Science, S.S.L. Jain College, Vidisha.

18. Saksena, Shalini. *Emergence of Communist China : A study of Indian perception and attitudes.* Delhi.

19. Shukla, Shakun. *Madhya Pradesh Dugdh Mahasangh ka sangathan, prashasan evam karya pranali : Bhopal Jile ke vishesh sandarbh mein.* Barkatullah. Dr. O.P. Chaturvedi, Govt. Girls College, Shivaji Nagar, Bhopal.

20. Vaish, Shiv Om. *President's rule in India : A study of its range and scope.* Rohilkhand. Dr. S.N. Gehlot, N.M.S. N. Dass College, Budaun.

Economics

1. Arvind Kumar. *Role of Bihar State small scale industries corporation in industrial development of Bihar with special reference to the District of Nalanda.* Magadh.

2. Chattopadhyay, Sankar. *The role of infra-structure in the Indian agricultural development.* Rabindra Bharati.

3. Dave, Anand. *Ratlam Railway Mandal ke karamchariyon ka samajik evam arthik adhyayan.* Vikram. Dr. (Smt.) S. Murthy, Reader, Department of Economics, Vikram University, Ujjain.

4. Jain, Vimala. *Madhya Pradesh mein grameen sakh niti evam krishi utpadan : Mandsour Jile ke sandarbh mein vishesh adhyayan.* Vikram. Dr. Harish Pradhan, Prof., Department of Economics, Vikram University, Ujjain.

5. Jondhale, Santram Gopalrao. *Content analysis of farm magazines : An exploratory study.* Marathwada Agrl. Dr. G.G. Nandapurkar, Prof. Department of Agricultural Extension, Marathwada Agricultrual University, Parbhani.

6. Joshi, Gopalkrishna Venkatarman. *Agrarian structure and tenancy reform : A case study of Uttara Kannada.* Karnatak. Dr. M.V. Nadkarni, Prof. and Head, Ecology and Econamics Unit, Institute for Social and Economic Change, Bangalore.

7. Khan, Masood Ahmad. *The structure and working of the eurocurrency market.* Delhi.

8. Khullar, M.M. *Experiences of recent economic development of India as a multiregional economy, 1961-71.* Delhi.

9. Krishnaiah Chetty, V.B. *A study of the impact of the development programmes on the scheduled castes in Andhra Pradesh.* Venkateswara. Prof. V.L.N. Reddy, Department of Adult Education, Sri Venkateswara University College, Tirupati.

10. Mathur, Venila. *Macro-economic analysis of Indian Railways with special reference to projections of traffic, rail road shares, dieselisation and electrification fares and freight rates and investment.* IIT Delhi. Prof. A.L. Agarwal, Department of Humanities and Social Sciences, Indian Institute of Technology, New Delhi.

11. Mohammed Yousuf. *Utilisation of irrigation potential under major irrigation projects : A case study of Sri Ramasagar Project, Andhra Pradesh.* Andhra.

12. Naidu, Rukmani. *Madhya Pradesh ke teen pramukh nagaron mein nagariyakaran ka adhyayan : Jabalpur, Bhopal, Indore.* Durgawati. Dr. R.K. Tiwari, Principal, Nav-Yug Arts and Commerce College, Jabalpur.

13. Naqvi, Saiyid Sibte Ali. *Economic policy, levels of living and agrarian structure in India with special reference to IADP District of Aligarh and Karnal : A study in sociology of economic policy.* Aligarh. Prof. A.A. Siddiqi, Department of Economics, Aligarh Muslim University, Aligarh.

14. Narendra Pal Singh. *Impact of Integrated Rural Development Programme (IRDP) on the socio-economic conditions of rural families.* CSAT Kanpur. Dr. S.N. Tripathi, Department of Agricultural Extension, Chandra Shekhar Azad University of Agriculture and Technology, Kanpur.

15. Padhi, Sakti Prasad. *Land relations and agrarian development : A comparative historical study of two districts in Orissa.* JNU. Dr. K.N. Raj, Centre for Development Studies, Jawaharlal Nehru University, New Delhi.

16. Prasad, Raj Kumar. *Agricultural marketing in Bihar with special reference to Bihar State Agricultural Marketing Board.* Magadh.

17. Prasad, Rohini. *Adivasi upyojanaon ka adivasi jansankhya per padane vale prabhavon ka ek anusheelan : Bastar Jile ke vishesh sandarbh mein.* Ravishankar. Dr. P.K, Jain, Prof. Department of Economics, Govt. Post Graduate College, Jagdalpur.

18. Saberi, Vahideh. *Socio-economic study of the Bahais in India.* Baraktullah. Dr. O.S. Shrivastava, Dean, Faculty of Social Science and Head, Department of Regional Planning and Economic Growth, Barkatullah Vishwavidyalaya, Bhopal.

19 Sarma, Archana. *Levels of living in Assam, 1955-1980.* Dibrugarh. Prof. A. Goswami, Department of Economics, Dibrugarh University, Dibrugarh.

20. Sinha, Arun Kumar. *Integrated rural development programme : An assessment of implementation in Gaya District.* Magadh.

21. Tabassum. *Trade intensity among selected developing countries of Asia and Africa.* Aligarh. Prof. (Mrs.) K.S. Khan, Department of Economics, Aligarh Muslim University, Aligarh.

Law

1. Jain, Padam Kr. *Trial of Law of Murder.* Rajasthan. Prof. T. Bhattacharya, Department of Studies in Law, University of Rajasthan, Jaipur.

Public Administration

1. Janardhan, J. *Organisation and working of state public enterprises with special reference to the Andhra Pradesh State Trading Corporation.* Osmania.

Military Studies

1. Srivastav, Hari Prasad. *An analytic study of first British expedition to Afghanistan, 1838-42.* Rohilkhand. Dr. O.P. Sharma, Bareilly College, Bareilly.

Education

1. Budhdev, Pravina V. *A study of secondary school students attitude towards various school subjects.* Saurashtra Dr. D.A, Uchat, Reader, Department of Education, Saurashtra University, Rajkot.

2. Chauhan, Sunita K. *Religious and moral education in Shakespeare's drama : A study.* Nagpur. Dr. G.S. Parasher, Department of Education, Nagpur University, Nagpur.

3. Cheriyan, Molly. *Facilitations and hindrances to the modernization of Chemistry teaching in the school of Kerala.* Kerala. Dr. N. Vedamani Manuel, Plot No. 82, 4th Cross Road, Kumaran Nagar Colony, Trichy.

4. Ejner, Asha Ashwinbhai. *A comparative study of the performance of B.C. and Non-B.C. pupils of Std. VIII on different sub-tests of the standardised reading test.* Patel. Dr. D.N. Patel, Reader (Retd.), M.B. Patel College of Education, Sardar Patel University, Vallabh Vidyanagar.

5. Gupta, Madan Lal. *Emerging needs of the Indian economy and significance of education through correspondence.* Delhi.

6. Khan, Mohammad Ataur Rahman. *Perceived justice and related factors effecting academic performance and satisfaction : A study of Delhi University students.* JNU. Dr. (Mrs.) Sushila Singhal, Zakir Husain Centre for Educational Studies, Jawaharlal Nehru University, New Delhi.

7. Lalrinkimi. *A study of socio-educational correlates of modernity in Mizoram.* NEHU. Prof. C.L. Anand, Vice-Chancellor, Arunachal University, Itanagar and Dr. M.A. Sudhir, Department of Education, Arunachal University, Itanagar.

8. Mathews, Jessy. *A study of certain familial attitudes, parental expectations and child-rearing practices related to the academic achievement of children.* Kerala. Dr. (Miss) Pushpital John, Prof. and Head (Retd.), Vikramapuram Hills, Trivandrum.

9. Prema, P. *A study of correlation of personality configurations and teaching effectiveness.* Madurai.

10. Raina, Bhushan Lal. *Education in a village of Jammu and Kashmir.* Baroda.

11, Ranganayaki, M.A. *A study to develop communicative techniques and materials to teach and test written English at the secondary level.* Patel. Prof. Subhash Jain, Director, H.M. Patel Institute of English Training and Research, Vallabh Vidyanagar.

12. Singh, Usha. *Job Satisfaction of the physical education teachers as related to their role expectations.* Panjab.

13. Thanachaikun, Nopporn. *An analytical study of under-graduate curricula for prospective secondary school Mathematics teachers in Thailand.* Baroda.

14. Zala, Malsing Motising. *A study of the impact of the instructional material on population education on the development of attitude towards population education of primary teacher trainees of Kheda District.* Patel. Dr. I.A. Vora, Reader, M.B. Patel College of Education, Sardar Patel University, Vallabh Vidyanagar.

Commerce

1. Bharal, Shailender. *Madhya Pradesh ke chhavigrah vyavasaya ka prabandh.* Vikram. Dr. M.L. Kothari, Head, Department of Business Management, Vikram University, Ujjain.

2. Dharam Pal. *Excise duties with special reference to the cotton textile industry in India.* Delhi.

3. Kothari, Milind. *Dhar Jile kee nagar palikaon ka vittiya prabandh.* Vikram. Dr. M.L. Kothari, Head, Department of Business Management, Vikram University, Ujjain.

4. Mahapatro, Aruna Kumar. *Manpower management : A study of practices, problems and prospects in the selected private industries of Orissa.* Berhampur. Prof. P.K. Sahu, Department of Commerce and Management Studies, Berhampur University, Berhampur.

5. Sharma, Pawan Kumar. *Development banks and entrepreneurship promotion in India.* Rohilkhand. Dr. U.C. Sharma, Bareilly College, Bareilly.

Home Science

1. Cherian, Annamma. *A content analysis of the selected health hygiene nutrition and family planning programmes of Pij T.V. and its impact on rural women of the selected villages of Kheda District.* Baroda.

Business Management

1. Kevin, S. *A study of the textile industry in Kerala with comparative reference to Tamil Nadu.* Cochin. Prof. P.N. Rajendra Prasad, School of Management Studies, Cochin University of Science and Technology, Cochin.

2. Kishore, Meena. *Factors related to need satisfaction: Focus on managers of public and private sectors.* IIT Delhi. Dr. (Mrs.) Amulya Khurana, Department of Humanities and Social Sciences, Indian Institute of Technology, New Delhi.

3. Krishna, Usha. *A study of performance appraisal practices in selected Indian enterprises.* Delhi.

Doctor Harisingh Gour Vishwavidyalaya : Sagar

Advertisement No. R. 1 of 1989

Dated : 9th February, 1989

Applications are invited on the prescribed form for the following posts :

Professors : Rs. 4500-150-5700-200-7300.

Physics : 1 (Electronics), Zoology : 2 (One in Experimental Zoology / General Metabolism and Organism Physiology), Criminology & Forensic Science : 2, Ancient Indian History, Culture & Archaeology : 1 (Tagore Chair), English : 1, Political Science & Public Administration : 1, Psychology : 1 (Experimental Psychology), Philosophy : 2, (One in Indian Philosophy and One in Philosophy of Science/Modern Philosophy). Law : 1, Electronics : 1 (Temp., likely to continue, Micro Processor/Microwave Electronics), Economics : 1, Sociology : 1, Mass Communication & Journalism : 1.

Reader : Rs. 3700-125-4950-150-5700.

Chemistry : 2 (One in Organic Chemistry), Zoology : 1, Physics : 1, Criminology & Forensic Science : 1, Applied Geology : 1, Centre of Advanced Study in Applied Geology : 2, Anthropology : 1, Geography : 2, Pharmaceutical Sciences : 3 (One in Pharmaceutical Chemistry, One in Pharmacology and One in Pharmaceutics/Pharmacognosy), Sanskrit : 1, Economics : 1, English : 1, (English Language teaching), Political Science & Public Administration : 1 (Regional Politics), Urdu : 1, Statistics : 1, Electronics : 1, (Temporary, likely to continue Vacuum Technology) Psychology : 1 (Experimental Psychology), Applied Economics and Business Management : 1, (Quantitative Techniques).

Lecturers : Rs. 2200-75-2800-100-4000.

Physics : 1, Mathematics : 4, Criminology & Forensic Science : 2, Sociology : 1, Pharmaceutical Sciences : 1, Sanskrit : 1, Economics : 2, English : 3, Political Science & Public Administration : 1, Philosophy : 1, Urdu : 1, Commerce : 4, Youth Welfare & Cultural Activities : 1, (Performing Arts), Electronics : 2, (Temporary, likely to continue, One in Digital Electronics and one in Instrumentation), Library & Information Science : 1.

Research Associate : Applied Geology : Three (One Temporary) (Rs. 2200-75-2800-100-4000).

Senior Technical Assistant : Electronics : One (Temporary, likely to continue)—(Rs. 550-25-750-EB-30-900 UGC).

Junior Technical Assistant : Electronics : One (Temporary, likely to continue)—Rs. 425-15-500-EB-15-650-20-700-EB-25-750 UGC).

Instructor : Pharmacy : One (Rs. 1290-30-1560-40-2040 Revised Choudhary, Likely to be revised).

Assistant Director Physical Education : One (Rs. 2200-75-2800-100-4000 UGC).

DAPARTMENT OF ADULT AND CONTINUING EDUCATION

Director : One (Rs. 4500-150-5700-200-7300 UGC).

Assistant Director : One (Rs. 3700-125-4950-150-5700 UGC).

FOR ACADEMIC STAFF COLLEGE

Director : (in the pay scale of Professor, temporary upto 31.3.90, likely to continue) : One

Reader : (Temporary upto 31.3.90 likely to continue) : One

Lecturer : (Temporary upto 31.3.90 likely to continue) : One

Technician : (Temporary upto 31.3.90 likely to continue) (Rs. 550-25-750-EB-30-900 UGC) : One

FOR THE UNIVERSITY COMPUTER CENTRE

System Manager : One. Rs. 1100-1600 UGC (Likely to be revised).

System Engineer : One. Rs. 1100-1600 UGC (Likely to be revised).

Programmers : Two. Rs. 700-1300 UGC (Likely to be revised).

Computer Operators : Two. Rs. 425-700 UGC (Likely to be revised).

Key-Punch Operators : Two. Rs. 260-400 UGC (Likely to be revised).

UNIVERSITY COLLEGE OF EDUCATION

Lecturer : Three (One Temporary) Rs. 1820-60-2300-75-3200-100-3300) (Revised Choudhary Scale).
Craft Instructor : One. Rs. 1290-30-1560-40-2040 (Revised Choudhary Scale)
Artist-Cum-Photographer (Botany) One. (Rs. 1260-30-1440-30-1860)
Technician (Microbiology) : One (Temporary) Rs. 550-25-750-EB-30-900 UGC
Draftsman : One. (A.I.H.C. & Archaeology) (Rs. 1290-30-1560-40-2040)
Stenographers (English)—Four (Rs. 1290-30-1560-40-2040)
Technician—C : One (Electronics) (C.I.L.) Rs. 380-12-500-EB-15-560 UGC (Likely to be revised).

The candidates, who had applied earlier, should apply afresh.

Qualifications for teaching posts will be as laid down by the U.G.C. and applicable at the time of interview.

Prescribed forms together with details of qualifications and specializations may be obtained from the Registrar by making a written request accompanied by a Postal Order of Rs. 20/- (Rs. 10/- in case of SC/ST Candidates) payable to the Registrar, Doctor Harisingh Gour Vishwavidyalaya, Sagar 470003 (M.P.) and one self-addressed envelope (5" x 11") bearing postage stamps worth Rs. 2/- each. Reservation in the posts of Lecturers for SC/ST candidates will be as per University Ordinance based on U.G.C. guidelines. Reservation for SC/ST Candidates in Non-Teaching posts shall be as per University Rules. Applications duly filled and accompanied by certified true copies of Marksheets, Certificates and testimonials should reach the Registrar on or before **Wednesday the 5th April, 1989.** One envelope should be used for one post only. Applications received after the prescribed date shall not be considered,

R.N. Dhawan
REGISTRAR

GOVERNMENT OF INDIA
MINISTRY OF HUMAN RESOURCE DEVELOPMENT
(Department of Education)

CZECHOSLOVAK GOVERNMENT SCHOLARSHIPS 1989-90

Applications are invited on plain paper in the given format from Indian nationals residing in India for the award of 5 (five) scholarships offered by the Government of Czechoslovakia for Post-graduate studies leading to 'Candidate of Sciences' (Ph.D) Degree.

Subject Fields : (Nuclear Physics; (ii) Nuclear Chemistry; (iii) Environmental Protection and Formation; (iv) Silicate Technology; (v) Wood Technology; (vi) Communications and Safety Systems in Transport; (vii) Czech or Slovak Language and Literature.

Value : Adequate Maintenance Allowance Board at Students Canteens at prices paid by Czechoslovak Students : Accommodation in Students' Hostels of respective Universities; Free Medical care.

Duration : Upto 3 years.

Age : 33 years as on 1.1.1989 (Relaxation in age upto two years will be given in the case of Scheduled Caste/Scheduled Tribe candidates). Upper age limit and experience may be relaxed by not more than three months at the discretion of the Selection Committee in the case of brilliant candidates.

Qualifications : Uniformly good academic record with at least 60% marks at Master's Degree level in Science/Engineering/Technology relating to the field of study or equivalent qualifications in the subject selected or in an allied field.

Essential Experience : At least two consecutive years teaching/research/practical experience as on 1.1.1989 in the subject field selected, after the prescribed qualifications successful completion of M.Phil will be counted towards experience.

Passage Cost : Travel expenses from India to Czechoslovakia and back will be borne by the candidates or his/her sponsors/employers. Subject to availability of funds, the passage cost may be met by the Government of India, provided the candidate is eligible under the rules.

NOTE : (1) The following documents must be attached with the application : (a) Attested copy of the certificate certifying the date of birth (b) Candidates belonging to SC/ST must attach a copy of certificate to this effect (c) Attested copies of marks sheet of qualifying examination (d) Attested copies of all degrees/diplomas/certificates etc., (e) A clear and precise programme of study/research proposed to be undertaken in donor country (f) A recent passport size photograph, of candidate to be affixed on the prescribed application form (g) A crossed Indian Postal Order of Rs. 5/- (and Rs. 1.25/- p. in case of SC/ST and other backward classes issued after the date of publication of this advertisement and payable to the Secretary, Ministry of Human Resource Development, Department of Education, New Delhi (2) Application in the subject-field other than those specified above will not be considered (3) Candidates who have already been abroad for study/specialisation/training either on a scholarship or on their own are eligible to apply only if they have been in India for at least three consecutive years after their return from abroad (4) Applications of candidates who are at present abroad, will not be considered (5) Candidates should have sufficiently good knowledge of India and the Donor country (6) Applications which do not contain Postal Orders and other required documents will be treated incomplete and will not be considered (7) No correspondence will be entertained with candidates not selected for interview/fellowship (8) Canvassing in any form will be a disqualification (9) Candidates must send their applications fully sponsored by their employers. Advance application duly completed in all respects may also be considered provided the application through employer is received within a fortnight from the last date prescribed for the receipt of completed applications pending sponsorship by employers (IPO is to be sent with the advance copy) and (10) Applications received after the prescribed date will not be entertained.

Candidates should apply for the above fellowships on plain paper (preferably typed) furnishing the following details/particulars to the Deputy Secretary, Ministry of Human Resource Development, Department of Education, External Scholarship Division, Section ES. 1, Room No., 516 'B' Wing, Shastri Bhavan, New Delhi-110001 latest by **15.3.1989**. Application received thereafter will not be entertained for consideration.

FORMAT

Code for Use in Office A Q E

Passport size
Photograph to be
pasted here

1. **Name of the country offering Scholarships :**
2. **(a) Subject (b) Sub-subject :**
3. **Name of the candidates (in Block letters) with full mailing address :**
4. **Marital status :**
5. **Date of Birth and the State to which the candidate belongs :**
6. **Whether a member of SC/ST or a tribal or aboriginal community. If so, give full particulars :**
7. **Academic record starting from High School/Higher Secondary:**

Name of the Board/ University/ Institution	Exam(s) passed	Year of passing	Division/Class with position, if any**	%age of marks obtained & position, if any	Subjects taken

** (In case no Division/Class is awarded and only grading is done the conversion formula adopted may be obtained).

8. Details of Professional Practical Training & Research Experience, specifying the period and number of papers published :
9. **Details of employment with dates and capacity and name of employer :**
10. **Nature of the present employment with date of appointment, designation and the name and address of the employers :**
11. Have you been abroad ? If so, give full particulars of the country, purpose and the period; also, mention the year of return to India.
12. **Have you approached any University or professor in the country offering the Scholarship to accept you and if so, indicate with what results. Please attach copy of reply received :**
13. Knowledge of foreign languages (other than English). Please attach proof :

Name of the Language(s)	Spoken very good/Good/Fair	Written Very good/Good/Fair

14. Proposed programme of study/research/training, specifying : (i) the work in which engaged at present (indicating date of Ph D registration and name of Institution) : (ii) Nature and programme of study/research desired : (iii) future plans/prospects after the proposed studies/research, and ; (iv) how are these related to the technical or economic development of India ?
15. Crossed Postal Order of Rs. 5/- (Rs. 1.25 in case of SC/ST candidates etc.) may be attached with the form with passport size photograph (one copy) : (No. and date of Postal Order to be given).

NOTE : Employed persons must send their applications fully sponsored by the employers. However, advance applications will be considered provisionally pending sponsorship by employers.

Place : **Date :** **(Signature of Candidate)**

16, (a) Certified that Shri/Smt./Km...............is employed by us/me and he has been sponsored by us/me for study abroad.

(b) He/She will be relieved by me/us, if selected. (c) I/We undertake that he/she will be permitted to join his/her department/organisation on return from study abroad. I/we will ensure that his/her terms and conditions of service i.e. salary, seniority, promotion, leave etc. will not be adversely affected on account of his/her absence and further that every thing possible will be done to provide the scholar with work and conditions of service suitable to and commensurate training obtained abroad.

Place : **Date :** **(Signature of Employer/Sponsoring Authority)**
Seal of Office

@ Strike out if not applicable.

davp 88/813

MOTHER TERESA WOMEN'S UNIVERSITY

KODAIKANAL-624102

NOTIFICATION NO. 51

Applications in the prescribed form are invited from women candidates for the following Posts :

Department	Post	No. of Vacancies
Administration	Registrar	1
	Assistant Registrar	1
Economics	Reader	1
Family Life Management	Reader	1
Sociology	Reader	1
Psychology	Reader	1
Adult and Continuing Education	Assistant Director	1
Adult and Continuing Education	Lecturers/Project Officers	2
	Technician	1

Registrar : Rs. 1500-60-1800-100-2000-125/2-2500 (UGC Pre-revised)

Qualifications

Applicants should possess high academic qualifications and rich administrative experience and not below the rank of a Professor of an affiliated College, with not less than 10 years of teaching/research and administrative experience.

The appointment is on contract basis for a period of three years in the first instance. Application from retired Professors may also be considered.

Assistant Registrar : Rs. 1340-75-1715-90-2435 (Tamil Nadu Government Scale of Pay)

Qualifications

(i) I or II class Master's Degree

(ii) Atleast 5 years of service in a supervisory capacity **OR** Atleast 5 years of teaching experience in a College.

(iii) A pass in Account Test for Subordinate Officers Part-II and The District Office Manuel Test.

Reader : Rs. 1200-50-1300-60-1800 (UGC pre-revised)

Qualifications

(i) Good academic record with atleast high second class Master's Degree in relevant subject with a Doctor's Degree or equivalent published work and actively engaged in research ; and

(ii) Five years experience of teaching in Under-graduate classes and/or Post Doctoral research work with evidence of published work or research including atleast three years as Lecturer or in equivalent position.

Assistant Director : Rs. 1200-50-1300-60-1800 (UCC pre-revised)

Qualifications : Essential

(i) Good academic record in the subject of the Adult/Continuing Community/Extension Education/ Community Development from a recognised Indian University or an equivalent degree from a foreign University.

(ii) Good academic record in the subject of Social Sciences/Social Work/Humanities/Education/ Sciences/Home Science.

(iii) M.Phil. or a Ph.D. in a subject related to adult learning or a Ph.D. in a subject under Social Sciences or Education or Evidence of published learning materials and learning resources in Adult / Continuing / Community / Extension Education/Community Development or published research in any of these area/areas.

Desirable

About five years experience of field work/teaching or research in a subject having bearing on Adult/Continuing/Extension/Community Non-Formal Education or Community Development.

Lecturer/Project Officer : Rs. 700-40-1100-50-1600 (UGC pre-revised).

Qualifications : Essential

(i) M.Phil. or Ph.D. in a subject related to adult learning or Ph.D. in a subject under Social Science or Education or Evidence of published resource learning materials and learning resources on the areas of Adult/Continuing/Community/Extension Education/Community Development or published research in any of the relevant area/areas mentioned.

OR

Good academic record in Social Sciences/Social Work/Humanities/Education/Sciences/Home Science.

(ii) Post Master's Diploma in Adult and Continuing Education from a recognised Indian University.

Desirable

Two years experience of field work in a subject having learning on Adult/Continuing/Extension/Community/Non-Formal Education/Community Development.

OR

Two years teaching experience in the subject of Adult and Continuing Education at graduate/post-graduate levels.

Technician : Rs. 610-20-730-25-955-30-1075 (Tamil Nadu Government Scale of Pay)

Qualifications

(i) Plus Two with a Diploma in Electricals/Electronics.

(ii) Three years experience in any private or Government agencies.

Note

(1) Appointment of persons on deputation will also be considered, if the candidate was found suitable and the employer is agreeable to spare the services.

(2) The University reserves the right to shortlist the candidates.

(3) The University also reserves the right to fill up or not to fill up the post/posts.

(4) Candidates already in service should send their applications through proper channel or they should produce 'No Objection Certificate' from the employers at the time of interview, if called.

(5) The Selection Committee reserves the right to relax the qualification or experience in exceptional cases.

Application forms will not be sent by post after **10th March 1989** and applications received after **25th March 1989** will not be entertained.

Applications can be had from the Registrar-in-charge, Mother Teresa Women's University, Kodaikanal-624 102, on requisition accompanied by a Postal Order for Rs. 20/- drawn in favour of the Registrar-in-charge, Mother Teresa Women's University, Kodaikanal and a self-addressed envelope stamped to the value of Rs. 2/-.

REGISTRAR-IN-CHARGE

CLASSIFIED ADVERTISEMENTS

REGIONAL ENGINEERING COLLEGE

ROURKELA-769 008 (ORISSA)

Advertisement—1/89

Dated : 14.2.89

Applications in prescribed form (for faculty positions) and on plain paper (for other positions) are invited for the following positions :

A. FACULTY POSITIONS :

I. Professors : Scale Rs. 1500-60-1800-100-2000-125/2-2500/- (unrevised), (Plus allowances).

(a) Computer Science Engineering and Application (Management)
(b) Mining Engineering.

II. Assistant Professors : Scale Rs. 1200-50-1300-60-1900/- (unrevised), (Plus allowances)

(a) Applied Electronics and Instrumentation Engineering (Electronics/Instrumentations), (b) Computer Science, Engineering and Application (Computer Science / Computer Engg.), (c) Chemical Engineering (Process dynamics control and Instrumentation/Reaction Engg. / Fluid & Particle Mechanics), (d) Electrical Engineering (any specialisation).

III. Lecturers : Scale Rs. 700-40-1100-50-1600/- (unrevised), [(Plus allowances).

(a) Electrical Engineering, (b) Mechanical Engineering (Any specialisation in corresponding discipline), (c) Computer Science, Engineering and Application (Computer Science / Computer Engineering/Computer Application).

B. OTHER POSITIONS

Technical Assistants : Scale Rs. 1050-35-1120-40-1320-EB-40-1560-EB-45-1785-50-2075/- (Revised), (Plus allowances).

(a) Electrical Engineering, (b) Computer Science, Engineering and Applications.

QUALIFICATIONS AND EXPERIENCE

A. Professor / Assistant Professor / Lecturer

U.G.C./A.I.C.T.E. norms of qualification and experience as of University level Post Graduate Engineering College standard.

For positions of Professorships experienced retired hands desiring to come under contract or persons serving in Government/Public Sector Undertaking desiring to come under deputation may also apply through their employers. Preference will be given to SC/ST/Physically Handicapped candidates who are otherwise considered qualified. Candidates abroad may apply on plain paper giving full bio-data. For posts of Lecturers, first class degree holders in relevant branches of Engineering may also be considered for Lecturership who have to procure Master's Degree within 5 years.

B. Technical Assistants

Diploma in Electrical Engineering/Electronics from a recognised Board/Council / Authority with one year's experience and knowledge including design, planning, fabrication, installation and operation of Laboratories relating to Electrical/Computer Laboratories.

Total monthly emoluments at the starting point as at present are : Professors : Rs. 3968.00; Assistant Professors : Rs. 3514.00; Lecturers : Rs. 2291.00; Technical Assistants : Rs. 1395.00. Higher initial pay in the scale is admissible to derserving candidates.

Further details for Sl. A I to A III regarding qualifications, experiences specialisations, service conditions etc. prescribed for the posts and application forms will be available from the undersigned on payment of Rs. 15/- in shape of crossed Bank Draft payable to "Principal, Regional Engineering College, Rourkela-769008", at the State Bank of India, R.E. College Campus Branch enclosing a self-addressed envelope 23 cm × 10 cm in size, with postage stamp worth Rs. 1.80. The scales of pay are likely to be revised. Separate applications should be made if candidates apply for more than one post.

For posts of Technical Assistant the candidates should apply on plain paper, stating full details of (1) Name, (2) Address, (3) Date of birth, (4) Education Qualification : (a) Academic, (b) Technical, (5) Details of Experience, (6) Employment Registration number and Centre of Registration, etc. with attested copies of certificates.

The last date of receiving complete application for Faculty is **14.3.89** and that of other posts is **6.3.89.**

N.C. Mohanty
REGISTRAR

NATIONAL INSTITUTE OF HYDROLOGY

ROORKEE

CORRIGENDUM

Candidates may refer to the advertisement No. 1/89-NIH (Admn.) dated 16.1.1989 for the post of Scientist 'E', Scientist 'C' and Scientist 'B' appearing in the **January 30, 1989** issue of University News. **The revised qualifications** for the post of Scientist 'C' for Hydrological Investigations may be read as follows :

For Areas (d)

Hydrological Investigations : Master's degree in Physics/Chemistry with minimum 60% marks or 7.0/10.0 CPI or equivalent with specialisation in Nuclear Physics/Nuclear Chemistry.

II. 5 years experience of Design/Teaching/Research in Institutions dealing with the Water Resources areas.

Desirable : Ph.D. in Science in relevant area.

The last date of obtaining the application forms is extended upto 10.3.1989 and last date for receiving the applications in the Institute is extended upto 30.3.1989.

The United States Educational Foundation In India

"Fulbright House", 12 Hailey Road, New Delhi-110001

1989-90 POST-DOCTORAL TRAVEL-ONLY GRANTS

Applications are invited for a limited number of Travel-Only Grants to the **U.S.** from Indian scholars who have invitations to visit U.S. under the following categories, beginning **September 1989 or later.**

(a) Research or teaching assignments for a **minimum period of three months.**
(b) Faculty engaged in inter-institutional collaboration, with Indian government approval, for a visit of **one to three months.**
(c) Candidates in the field of social sciences, humanities, fine arts, and performing arts with invitations from recognised institutions, colleges and universities for a professional visit of **two to three months.**

GRANTS ARE NOT AVAILABLE TO ATTEND INTERNATIONAL CONFERENCES AND SEMINARS

Candidates must :

(1) have a Ph.D. degree or equivalent published work. (This may be waived for candidates in B & C categories).
(2) be an Indian citizen and be present in India on the closing date of competition.
(3) be proficient in English.
(4) be in good health.
(5) not have been in the U. S. during the last four years to teach, to do research or on a professional assignment.
(6) **For Category A :**

Be accepted by a recognised U.S. university or research institution for post-doctoral research and/or as a visiting lecturer and must have assurance of dollar finance to cover their expenses in the U.S. for the duration of the assignment. The letter of acceptance must show the nature and duration of the assignment, and must be accompanied by evidence of dollar support at the rate of not less than $ 9,000 and not more than $ 20,000 per academic year. The evidence of dollar support could be in the form of a grant or fellowship offered by American universities or research institutions or by Indian universities or research institutions.

(7) **For Category B & C :**

Letters of invitation or sponsorship must indicate that all local expenses will be met.

The grant will provide round-trip economy class air travel, by the most direct route, from the candidate's ordinary place of residence or his academic institution to his U.S. institution and back. Excursion fare tickets valid for 120 days will be provided for those with programs of less than four months' duration in the U.S. Travel will be arranged by the Foundation, and grantees must travel by **American carriers** only and on U.S. visas issued against the IAP-66 form provided by the Foundation and must conform to rules and regulations of the U. S. Government applicable to all exchange-visitor visa holders.

HOW TO APPLY

Eligible applicants must complete and forward two copies of the prescribed application through the administrative head of their institution so as to reach the Foundation no later than **May 15, 1989**, together with a copy of the letter of acceptance from the U. S. institution. The original application, along with enclosures, should be sent to the Director, U.S.E.F.I., "Fulbright House", 12 Hailey Road, New Delhi 110 001.

The second copy should be sent to the Regional Office of the U.S.E.F.I. (addresses given below) nearest to the applicant's place of residence except in the case of those resident in Rajasthan, Delhi, Haryana, Punjab, Himachal Pradesh, Jammu & Kashmir and Uttar Pradesh. Candidates residing in these States should send both the copies to New Delhi.

The Regional Officer,
U.S.E F.I.,
"Sundeep", 4 New Marine Lines,
Bombay 400 020.

The Regional Officer,
U.S.E.F.I.,
American Consulate Building,
Mount Road, Madras 600 006.

The Regional Officer,
U.S.E.F.I.,
Flat 2. Park Mansions, 57 Park Street,
Calcutta 700 016.

Incomplete applications or applications which are not forwarded through the administrative head of the institution will not be considered.

Government officials should send a copy of their application through proper channel to Mr. S. K. Sengupta, Under Secretary, (University and Higher Education) Ministry of Human Resource Development, Department of Education, Shastri Bhavan, New Delhi 110001. The second copy could be sent directly to the U.S.E.F.I., 12 Hailey Road, New Delhi 110001, as an advance copy. Consideration will, however, be given only if the application through the Government reaches the Foundation in time.

UNIVERSITY NEWS, MONDAY, FEBRUARY 27, 1989 Regd. No. R.N. 7180/63 Delhi Postal Regd. D(C)1086

Institute for Plasma Research

(An Autonomous Institute of Deptt. of Science & Technology)

GOVERNMENT OF INDIA

Near Indira Bridge, Gandhinagar Highway

BHAT, GANDHINAGAR—382 424

ADVT. NO. 02/89

The Institute for Plasma Research invites applications from young, bright and motivated candidates for the following research programmes.

I. PH. D. PROGRAMME

II. SHORT TERM RESEARCH PROGRAMME

This Institute conducts research in plasma physics, free electron lasers, relativistic electron beams, non-linear dynamics, chaos and physics of solid surfaces. This research programme provides exciting opportunities and excellent facilities to work on high technology areas such as high power lasers, spectroscopy (visible, ultra violet, x-ray and mm-wave); laser induced fluorescence; bolometry; x-ray tomography; nuclear detection techniques; interferometry; high-current, high-voltage pulsed power systems, sophisticated data acquisition system, sophisticated computer codes and numerical simulation.

PH. D. PROGRAMME

Candidates with M.Sc. in Physics/Applied Physics and those appearing in the final examination are also eligible to apply. Selection will be on the basis of personal interview and written test at the Institute and the travel expenses for the same by second class to & fro rail fare by shortest route will be provided. The selected candidates will undergo prescribed course work, mainly during the first year. The scholarship is Rs. 1800/- p.m. during the first two years. Subject to evaluation it may be increased to Rs. 2100/- p.m. in the next three years. Normally the Ph.D. programme is for 5 years and on its successful completion deserving candidates may be offered regular positions in the Institute. Deadline for applications is **April 10, 1989.**

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Students of M.Sc. (Physics) who are now in their first year of study are eligible to apply for this programme. Selected candidates will be provided the opportunity to interact actively with scientists of IPR in the frontier research areas of Plasma Physics for six weeks from May 23—June 30, 1989. The participants will receive a consolidated stipend of Rs. 1000/-, to & fro second class rail fare by shortest route and free hostel accommodation. Deadline for applications is **April 10, 1989.**

Applications for these programmes should include a detailed resume specifying name, date of birth, address (present and permanent), academic record (School leaving record, B.Sc., M.Sc. with percentage of marks, rank in the university, subjects taken and the name of the university/institution). Candidates applying for Short Term Summer Programme must attach two letters of reference from their teachers. Applications should be sent to the Chief Administrative Officer at the above address superscribing the envelope the Advt. No. and the Programme applied for.

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मराठवाडा विद्यापीठ
३० वा पदवीदान समारंभ

Hon'ble Shri Shivraj V. Patil Chakurkar, Union Minister of State for Civil Aviation and Tourism, addressing the Annual Convocation of Marathwada University. On his left are Principal Shivajirao Bhosle, Vice-Chancellor and Shri S.B. Patil, Registrar of the University.

SCHOOL OF CORRESPONDENCE COURSES

ANDHRA UNIVERSITY-VISAKHAPATNAM-530 003

ADMISSION NOTIFICATION

Applications are invited from the candidates residing in India for admission into the following P.G. Diploma courses in the School of Correspondence Courses for the calendar year 1989.

COURSE	ELIGIBILITY
1. Post-graduate Diploma in Translation (Telugu Medium) : One year duration.	B.A. Main Telugu or Ancillary Telugu or General Telugu; B.Com General Telugu; B.Sc. Two years General Telugu; Bhashapraveena with any recognised Degree : B.A. (O.L.).
2. Post-graduate Diploma in Environmental Studies. (English Medium) : One year duration.	Candidates should have passed any degree examination of this University or any other University which is recognised by Andhra University as equivalent thereto.
3. Post-graduate Diploma in Functional English : One year duration.	Candidate should be a graduate of this University or any other University which is recognised by Andhra University as equivalent thereto.

Applications will be issued from 10-3-1989. Filled in applications should reach the undersigned on or before **17-4-1989.**

Intending candidates may write to the undersigned by Designation for Application form and Prospectus by sending Rs. 10/- by Demand Draft/Money Order in favour of the Director, School of Correspondence Courses, Andhra University, Waltair-530 003. The candidates may also remit cash at the CASH COUNTER of the School of Correspondence Courses towards Application Form and Prospectus. **Postal Orders and Cheques will not be accepted.**

The Admission application forms and Prospectus are also available at our following Study Centres on payment of Rs. 10/- through Demand Draft drawn in favour of the Director, School of Correspondence Courses, Andhra University, Waltair-530 003.

1. Government College, Srikakulam, 2. M.R. College, Vizianagaram, 3. Mrs. A.V.N. College, Visakhapatnam, 4. Government College, Rajahmundry, 5. P.R. Government College, Kakinada, 6. Sir C.R. Reddy College, Eluru, 7. S.R.R. & C.V.P. Government College, Vijayawada; and 8. A.C. College, Guntur.

The School has no agents and takes no responsibility for the Prospectus issued and promises made or admission by any other institutions.

Prof. V. Abraham
DIRECTOR

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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor :
SUTINDER SINGH

C. F. T. R. I., M

Technology Demonstration Districts

S. C. Bhatia*

Introduction

One of the promising features of the National Literacy Mission is the Component called "Technology Demonstration" (T.D.). It is promising insofar it opens up the possibility of an interface between literacy and adult education on the one hand and technology on the other. The National Literacy Mission (NLM) document accords to it a measure of primacy by placing it within the framework of "strategy" which has Motivation and Management as the other two elements. The strategy is designed to "undertake technology demonstration" in 40 districts for "development, transfer and application" of "techno-pedagogic inputs". It goes on to declare that "results will be evaluated for application beyond 40 districts."

Reinterpret Technology Demonstration

There is need to reexamine the scope of "technology demonstration" from its existing, and what I feel is rather limited, visualization in terms of "techno-pedagogic inputs" to what the NLM describes in its Chapter on "Objectives" as functional literacy". The NLM document describes "functional literacy" as

- — achieving self-reliance in Literacy and Numeracy;
- — awareness of one's condition and change in such conditions;
- — acquiring skills to improve the economic status and general well-being; and,
- — imbibing core national values.

The first objective views "functional literacy" as a knowledge resource, the second as application of that knowledge resource to life conditions and preparation for participation in the development process. The third objective is clearly closer to economic and social development goals of the individual and society.

By visualizing the strategy of "technology demonstration" as mere "techno-pedagogic inputs", we seem to be utilizing the potential of strategy halfway, confining our outreach capacities to only one and a half of the four objectives. Relating "technology demonstration" and the process of technology development, transfer and application only to pedagogic or andragogic areas appears to be a weaker utilization of this bold concept. A stronger utilization of the concept could be envisaged wherein the process of development, transfer and application of technology is directly related to drudgery in home-based tasks and low productivity in other work-related tasks. The utilization of technology to reduce drudgery in home-based tasks, in providing social support services and in upgrading skills and productivity levels of the learner population particularly in rural areas and urban slums could turn out to be much more rewarding. These content areas could easily be assimilated into the functional literacy programme. Is it only indicative of a measure of realism in management options ? Are we hesitant to placing literacy in an integrated perspective of economic and social development ? Do we

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**Professor and Head, Department of Adult, Continuing Education and Extension, University of Delhi, Delhi-110007.*

still feel that literacy and adult education must remain a sector-specific sub-activity ?

There is need to reconsider the interpretation of the strategy. The least we could do as a compromise between a stronger and weaker utilization of technology is to place literacy in the integrated framework of technology missions. The six technology missions provide ample scope for evolving such an integrated perspective and in the process give a more comprehensive meaning to the strategy of "technology demonstration". Literacy planning must not only view conditions in which literacy is imparted, but also link it with people's quest for improvement in the economic and social aspects of the quality of their lives.

There is no doubt that "techno-pedagogic inputs" as visualized in the NLM document have an important place in literacy planning. It is a welcome recognition of the critical role which these inputs can play in brightening up the learning environment. It is an innovation in itself that the sector of literacy planning would now become a user of technology and that learners participating in the programme would readjust their life vision to make technology an important element in their lives. Electrification, improved petromax and solar lighting do expand the activity hours of an individual, a family and a community. The learning environment becomes more interest-generating with a host of learning aids, use of mass media facilitates the introduction of diverse ways of learning.

Technology Demonstration and Area Development

There are additional possibilities that need to be explored. The existing levels of "technology control" among the people in the "technology demonstration districts" need to be studied to find out if it is possible to improve/upgrade technology control/proficiency levels in their daily economic and social operations. This step would enable literacy programme managers to coordinate their activities with a host of development programmes in the technology demonstration districts : the Universalization of Immunization Programme, Science and Technology for Rural Development, Science and Technology for Women, Science and Technology for Weaker Sections, IRDP (including TRYSEM and DWCRA), the NREP, the vocational Training Programme of the Central Social Welfare Board, etc. Interface between literacy and technology through the strategy of technology demonstration can help open many development windows.

The strategy of "Technology Demonstration" invests literacy efforts with a place-specificity which comprises geographic, social, economic and cultural elements. It is not merely the relationship between literacy or adult education and the manner in which application of scientific principles can facilitate its acquisition; it is an instrument to open up the possibilities of linking literacy or adult education with people's ways of living and suggestions towards solution of problems in their lives. In the first case, interface between literacy and technology would help programme managers and literacy researchers devise a brighter learning environment at the Adult Education Centres or the Jana Shikshan Nilayams. It would also mean research efforts to explore the possibilities of rapid literacy. In the second case, interface between literacy and technology would seek to identify and experiment with suggestions for solution to people's developmental problems. It is in this context that the identification of Technology Demonstration districts assumes critical significance. The identification of 40 districts need not be viewed merely as indicative of the pilot nature of this interface, but an extended opportunity to view the district as a cohesive unit of planning integrated development efforts for the people who represent a cluster of development features including illiteracy, poverty, low health, high infant mortality, etc. The questions in this second literacy-technology interface are more complex and require a systematic study of the district level resources and constraints. The Technology Demonstration Districts should provide us an opportunity to view it as a step towards the Prime Minister's grassroot vision of District level planning beginning from the Eighth Five Year Plan.

Some Questions

Are we moving in the direction of achieving both types of interfaces between literacy and technology ? Or, are we currently confining ourselves to the first kind of interface ? It is too early to say anything definitely; one needs to wait till the TD District profiles have been prepared. It should be hoped that the TD District profiles would be available for discussion and analysis; this effort would help in the process of optimisation of gains from literacy-technology interface.

INDIAN UNIVERSITY SYSTEM
A Call to Action

C. R. Mitra*

I. Preamble

- This paper, by choice, avoids cataloguing a set of problems and issues or supplying academic solutions.

- Literature is surfeit with such uninvolved studies, where ultimately the actual doer discovers no action plan.

- Instead, a selected list of problems and issues out of those identified by the National Commissions on education, various education policy statements, IIT Review Report, CSIR Review Report, binational conferences on education and other such authorities have been picked to relate to certain case studies.

- The salient features of successful and also unsuccessful cases have been tabulated in the enclosed table. By no means these are exhaustive, but they attempt to cut through verbal barriers and present the status of actual experimentation to a planner and a doer.

- The last column in the enclosed table attempts to identify such active actions as are required in order to universalize the success stories.

II. Diagnosis

- The higher education system has become flabby and has resorted to soft options.

- The Central Government has been the primary source of new ideas and new funds. The government is also seized of the notion that all plans of reform-action are linearly proportional to funds that have to be invested. Thus, the university system operates on the basis, "no fund, no reform".

- The system, as such, has allowed many myths to be sustained, kept many issues alive and generated artificial crises.

- Unfortunately, the fund-givers have uncritically accepted the above attitude and docilely agreed with the system and its cynical refrain that nothing can work, money crunch cannot be ever removed, employable, committed students are scarce and society is not doing enough for the higher education system.

- This syndrome has led to an artificial focus on a classification where professional education streams like medicine, engineering, management have been treated as sacred cows. The role of professional education in juxtaposition with general education has never been examined as a total task.

- By converting the exercise into a totally patronizing and normative one, the system has ignored the requirements for continuing education, university's role in national service and a self-reliant method of knowledge absorption. Thus, one witnesses an ironic situation, where the most modern ideas are bandied about in a system which is almost as old as time.

III. Strategy

(a) *For the Central Government*

1. Review the past schemes and identify why they failed.
2. Encourage those who offer to meet the educational tasks of the Central Government without asking for money, yet remaining professionally and educationally accountable to appropriate monitoring by the government.
3. Treat each university as a whole system so that all money emanating from the government is pooled to meet the approved educational and other purposes of the university.

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* *Director, Birla Institute of Technology& Science, Pilani, 333031.*

(b) *For the innovator and idea-maker*

1. To seize the crux of the issue in a bold way, by focussing on the need to re-educate and retread professional and all other persons already in vocation. This isolation of approach has the advantage of banishing from thinking and also from techniques of functioning detracting variables like : Whom to teach ? Who is to teach ? What employment awaits at the end of the teaching process ? Who is to pay ? Who would be ready to avail of the opportunity thus provided ? etc.

2. Admittedly, this approach does not encompass the total problem, but it makes a dramatic focus on at least one task of the problem which has been avoided by the entire university system in the country, that is, the continuous retreading of existing manpower in trade, vocation, profession, voluntary agencies and the political system.

3. Before highlighting further details, it should be important to make a distinction between training and education. For the purpose of this paper, training is considered to be immediate and temporal, while education has a transcendental quality. Further, it is not necessary to hold the view that both training and education cannot be imparted in the same institutional setup. Likewise, education cannot be exclusively in the university and training exclusively in the industry.

4. With the above perception of training and education, a continuing design can be made of the entire process of upgrading professionals, where the act of training can simultaneously meet the act of education and vice versa. Fundamentally, it is an attempt to bring theory and practice in simultaneous operation in the same establishment with learners and tutors, who have to simultaneously do both the roles.

5. The process in practical terms would create courses which lead to a degree irrespective of whether the place is a university or not. It is important that those universities which participate in this process give up their age-old isolation and big brother attitude. Similarly, those industrial establishments which operate massive training programmes must not ever allow the programme to remain as a mere appendage outside the boundary limit of the factory. In fact, even the most prestigious training programmes in the country in a diverse group of industries suffer from the defects where bookish lectures are delivered to the trainees without any reference to their daily jobs and responsibilities.

IV. Where can this unique strategy be initiated ?

(a) Selected universities, which have already gone ahead, on their own, to take education from the campus to the work place, and have identified teaching material from on-line, on-hand activities in the world of work.

(b) Major R&D establishments like CSIR need not inflate the statistics of the number of Ph.D's produced by different Indian universities, but take over the responsibility of producing Ph.D. themselves.

(c) Major and time-honoured training programmes in industries and establishments like the Indian Railways, Tatas, Hindustan Lever, Defence services, etc. etc., should no longer remain satisfied with mere imparting of training, but must have a systematic plan to enter the field of education, independent of the university system.

(d) Establishment of new nonformal universities should be encouraged, which would come forward and collaborate with industry and R&D establishments to build up new curricula and new degrees, where the fundamental goal is modernization of knowledge and skills of

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TO OUR READERS

Knowledgeable and perceptive as they are, ou contributors must not necessarily be allowed to hav the last word. It is for you, the readers, to joi issues with them. Our columns are as much open t you as to our contributors. Your communication should, however, be brief and to the point.

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professionals at large.

V. Immediate Benefits

(a) The professional is automatically the student, dispensing with the need to search for students.

(b) The supervisor is automatically the teacher, dispensing with the search for a teacher and then a programme of retraining the teacher.

(c) The curriculum is alive and is continuously being informed on the total production, routine and innovative thrust of the organization. Its updating is continuously done against accountability, which is financial or national need.

(d) The traditional cost towards building and operations, for which persistent demand is made on dwindling national resources, would evaporate because every institution is merely asked to continue doing what it professes and orient its mind, thought and action to combine training with education and award of degrees and certificates.

(e) The market would not be inundated with graduates who search for jobs, which are always elusive.

(f) One or two such establishments can be immediately ushered into existence and, once established, would be in a position to absorb new candidates for these degrees, deflecting them from traditional degree granting universities. This has been done by the establishments mentioned above in the name of giving facilities for university students for their training or exposure. In fact, the government has passed an act by which every industry of a particular size has been required to accept student trainees for the completion of their diplomas or degrees in the traditional establishment. It would be better for these institutions to create a viable alternative, so that young men and women can seek salvation through another type of education and degree than from the cafeteria system that Indian universities offer or permit.

VI. Technical Education

Technical education is chosen as a particular illustrative example, partly because the author himself is involved in technical education and partly because engineering education ultimately leads towards relationship between science and technology, which are the most important inputs the nation requires for its modernization and salvation. It is with this objective in view that certain thoughts are offered below :

(a) Instead of isolating technical education from other education, all education must be informed and inspired by the essentials of engineering education. The engineering curriculum is characterized by the fact that even though it bears a particular discipline tag, hardly more than 25% of the entire curriculum is devoted to subjects in the discipline. Being practical, being concerned with theory in application, it recognizes the need for and designs the curriculum to incorporate fundamentals of science, mathematics, computer science, technical arts and sister disciplines. It has a healthy attitude towards projects and has open-ended approach which is not dogmatic and cannot ever insist on unique solutions. In some sense, other educational streams like management, commerce, architecture, medicine have a similarity of attitude.

(b) Once this framework is accepted, the curriculum for every kind of education will find room for inclusion of courses around science and technology. There will be basic hard science and technology courses in some cases and there will be courses built on foundation of science, which is a method, and perhaps of technology, which is a means, to guide analytical thinking and requirement of synthesis.

VII. Nonformal System

Any innovative approach in consonance with the above must find establishments which are no longer replicas of the present system, whether education in university or training in industry. Universities without walls would be more flexible and would be able to begin with less handicap. An open university really is not an open university if it merely repeats the correspondence courses of scores of Indian universities.

VIII. Conclusion

This paper is not addressed to a particular organization. It is hoped that a large cross section of responsible authorities would find this paper thought provoking and would realize the significance of the stark simplicity of its approach, which requires no massive input of money, does not upset the apple-cart, but merely gives respect and recognition to something that is already happening in the country. One should fervently hope that this will cause a public debate and discussion not only on finding an alternative, but also about reassessment of performance of loners in the field. □

TABLE

Issues/Problems	Features of Successful Cases	Features of Unsuccessful Cases	How to Universalize Success
1	2	3	4
A. Funds other than Government	Substantial part of public cost passed on to students and industries, although total budget is smaller than corresponding government supported institutions.	Shied away, yet received escalating fund support from government	Government must judiciously withdraw from a position of bounty-giver. Recently the government has demanded just the same initiative from the CSIR R&D system.
	Integration of main budget with money flow on account of NSS, NCC, national sports, adult education, sponsored research, etc. Success only partial.	Not attempted so that neither the main budget nor the budget for other such items fully utilised.	Government should insist that all funds should be integrated and extra-curricular activities should inform themselves on academic projects and academic requirements.
	Integration of financial and operational activities became imperative for survival of routine and innovations introduced.	Never tried. Result : unutilized funds and no consistent administrative procedures evolved.	Government being the sponsor of schemes and institutions can easily demand complete coordination for reduction of government share of cost and for improved local efficiency.
B. Place of Science & Technology in Curriculum	Introduction of science and technology as subjects in the total curriculum made in the school system and several universities.	University system largely unresponsive compared to school system.	Government insists on reform and pays money. Government must also insist on this reform without offer of money.
	Initiation of studies of the role of science and technology in the strengthening of curriculum for any degree and also in the improvement of operations of the system.	Extremely limited response, except esoteric courses completely unrelated to the main stream of intellectual effort.	Government should give clear support for those who want to integrate it as a part of total education and not for creating another esoteric department or degree programme.
	Success has not yet become universal.		
C. Employability/ acceptability/ of graduates	Curriculum related to the gross requirement of Indian market by planned and symbiotic linkages between teaching in classroom and practical application in the world of work before graduation.	Limited experimentation on vocationalization in the school system and sandwich programmes in the university system failed.	Government should investigate why earlier efforts, in spite of the fullest government support, were atrophied: and should now insist on its implementation.

1	2	3	4
	Medical education functions with fundamental acceptance of this concept.		New knowledge never nurtured and left to those who are specialists only in name.
	Flexibility, restructuring and introduction of new courses in traditional degree programmes done and accepted by teachers, students and industry.	Limited experimentation, done half-heartedly, aborted the scheme.	Government must not give any money on these reforms unless reforms are part of the total educational structure of the university.
D. Modernization	Absorption of new knowledge, its codification and transmission fully networked.	New knowledge never nurtured and left to those who are specialists only in name.	Support for introduction of new knowledge and ideas and courses should be only, when it is part of the total intellectual world of universities.
	Reform in operation insists on openness and self-reliant introdduction of technology and computer.	Introduction of these reforms create new privileged and vested groups, leaving the rest of the system archaic and antediluvian.	Government should not spoon-feed and prescribe a deadeningly uniform model throughout the country. Should make grants conditional on modernization and openness.
	Credibility generated on a new perception of stakes for the students and also for the staff.	No attempt made to identify stakes and insistence on responsibility at various levels and segments of the population.	Government should not yield to the temptation of writing rules of procedure for all institutions in the country.
E. Orientation towards Society	All activities, curricular, cocurricular or extra-curricular, are planned to ultimatly serve the society, knowledge accumulation and nation building. Involvement in social service is done through the vehicle of academic project works for which the volunteer is also academically assessed. This assessment includes technical competence, cooperation, leadership and self-reliant innovation.	Never tried, co-existence of academic activity together with amateuristic social involvement does disservice to both. Opportunity to apply new knowledge to the most trivial practice is constantly lost.	Ultimately, the government is guilty of providing soft money where the valiant effort of some institutions is negated because of the pump-priming that the soft money does to entrenched vested interests.
	Success has been limited.		
F. Orientation towards Industry	Curriculum is updated by constant reference to international growth of knowledge and the legitimate professional requirement of Indian industry. The implementation of changes in the curriculum is ensured through feedback of a cooperative system of education where the student works as an under-study in industry before he graduates.	Never tried. But unfortunately shoddy versions like consultancy, occasional brain-storming sessions and infrequent visits are hoisted as credible alternatives.	Government must take counsel from institutions and industries and encourage identification of an alternate model and its survival.

1	2	3	4
	The university manpower of the students is a valuable strength to industry, without industry having to invest in a permanent establishment. This sharing of the overhead between the industry and the university reduces ultimate national cost and provides more self-reliant graduates.	Nothing done.	Government should at least insist on this in the public sector industries.
	Reaching out to adult professionals for retraining and training in emergent areas through new courses or even new degrees, hitherto not conceived. Almost the entire cost and the involvement is tapped from industry.	Nothing done.	Government must orient the new universities, like open universities, towards this objective. Government must encourage industry to come forward and sponsor new universities based on this concept.
G. Orientation towards R&D	It is an extension of the above concept with particular reference to R&D establishments, through novel linkages.	The scheme largely preserves pockets of memory of the university in the R&D laboratory and a miniature imitation of the R&D ethos in inadequate universities.	Government is the sponsor of both the systems and it is sad that the government has not insisted on knowledge integration between the two. It is important for the government to cause a study as to why it is that in these two systems new ideas have floundered, while the government has achieved various degrees of success elsewhere.
H. Purpose of Education	Frankly the economic gains come to an individual who pays the larger share of private cost. Nation gains a graduate with a new outlook, a new culture and new work habit.	Pretends that education is only for the sake of education and human personality building should be done in a narrative classroom exposure where a teacher teaches obsolete knowledge without any reference to practice.	If the government is to do justice to neglected areas like universal illiteracy, vocational outlet, entrepreneurship, it cannot any longer subscribe to the concept that money should be given to university system and R&D system without an obligation on their part to make immediate delivery to the society.
I. Management of Change	Comes from inside because the system constraints are accepted and an optimum design is accordingly made.	No awareness that this is necessary because a strong lobby blames all failures on the government and hoodwinks the government for more money.	Unfortunately, the government has chosen to be hoodwinked because of the bureaucratic propensities to write a plethora of rules and demand no accountability or cause any study as to why so many schemes and projects supported with handsome grants and full backing have failed.

EDUCATION IN HUMAN VALUES

S. Abdul Kareem*

The Scenario

The society that rates market value, use value, esteem value, cost value and exchange value allows human values to go down the drain; hence the perpetual cry : erosion of human values. Society cannot hold them in its folds. They fall apart. Rare as are these attributes that set off human beings from the animal species, values have a tendency to slip through man's fingers and his humanity stands questioned. In the animal work, the tiger is ever sure of being a tiger, a fish of ever being a fish, but civilized man is never sure of being a human being. If the salt loseth its savour, wherewith it, then, shall be salted ?

We gave unto ourselves a constitution with a secular slant and banished the gods of our idolatry. Moral education remained a programme on paper; it never touched the outer fringes of our existence. In this mundane world, everything is weighed, measured but values get devalued and thus suffer gross neglect. Ultimately, values and mankind become aliens who have never met. Hence the need to salvage them from the debris of civilization that crumbles into ruins as years roll by. With the last vestiges of respectability having given up their ghosts, the new generation is fed on the sop of sophistication. The glossy veneer covers up the many cracks within. Hence in men there is more of apes than of the glassy essence. Men with transparent values are hard to come by.

Nurseries of Values

Erosion of values, as of soil, makes the components crumble when the capacity to hold them together disappears. Naturally cohesion fails. As families grew in size, the nice bonds that once held them together came to be snapped. The values of mutuality of interest, inter-dependence and tolerance that the families in the past generated gave place to self-centredness, mistrust and impatience. The family as a living unit came to be splintered and became secluded owing to conditions of existence and survival. Thus the family no longer remained the nursery of values.

Schools and colleges got crowded. The shift system could hardly manage the growing numbers, with classes swelling] every year, as it were bursting at the seams. The loss of personal touch discredited the sacred ties of the master and disciple as of yore. The heavy syllabus made short work of moral education and those periods meant for ethics came to be usurped by mathematics. Citizenship to students outside the political science stream became a mumbo-jumbo mouthed glibly but practised hardly. With the blissful ignorance of the core contents of justice, liberty, equality and fraternity, we the people made ourselves sovereign. The drift led to disintegration.

Campus and Society Nexus

Students in their teenage are as much exposed to the campus culture as they are to the societal mores. It has been virtually impossible to undo the damage done to our students in the urban conglomerations. Dr. Alexander Meiklejohan states in his work, *The Experimental College* :

> 'The closeness of connection between the character of a society and the character of its education cannot be too strongly stressed. Schools and colleges are not something apart from the social order to which they belong. They are in that order, trying to prepare its youth for participation in its own activities. And a society can only teach the hopes, the knowledge, the values, the beliefs which it has'.

As a result, the ways of the world and the practices prevalent in society do impinge on the consciousness of students. A society that rarely relies on a sound value system and is saturated with sharp practices on a large scale presents a conflicting arena for an idealist steeped in values. Ultimately what gets an upper hand is what works in the societal pattern obviating the design drawn on the young minds by an impressionable system of values.

Peace and tranquility are at best ideals hardly seen in our times. Everywhere there is the tumult and uncertainty. Man is beside himself and as such, he is incapable of drawing upon the resources of mind, withdrawing into himself or taking his stand inside himself, attending to his inwardness far from the exterior of this tumultuous world. Such a withdrawal

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Principal, Anjuman-e-Islam's Nehru Arts, Science & Commerce College, Hubli, Karnataka is conducive to the formation of ideas which bid fair to become ideals with the strength of conviction and character. With the inner self thus strengthened, man will not allow himself to be dominated by things but govern them himself imposing his will and design on them. Thus man can realize his ideas in this world, harmonize it and impregnate it with ideals. Such a conception of man fortified with a system of values is analogous to that of Shakespeare when he created. Ariel, the spirit of ideas at whose bidding even the winds would blow.

Strategic Withdrawal

It took thousands of years for man to achieve this inward concentration by withdrawing into himself, which is an indispensable condition of learning. Over the millenia, through cultivation and culture, man has been continually creating thought little by little. Being a volatile acquisition, there is the danger of man losing this gift of conceiving ideas and formulating thoughts. The destiny of man depends upon his retaining and maintaining that consciousness and concentration. It is not that man lives only to think but thinks so to make his life purposeful by basing it on ideas and thoughts. Aristotle had said that Gods do nothing but think. By such a proposition, the Greeks projected that man's greatness lay in exercising his intellect and taking his stand within himself. Thus when such reflective consciousness became man's forte, we had ages of reason, enlightenment and culture.

If some had sought to isolate contemplation from action, others tended to reject contemplation completely and deify pure action. Bereft of tdeas, man is likely to show the tendency to slip back into animality. Human life loses value when the figure of a pure man of action rises above the horizon. Without a strategic retreat into the self, we are iikely to repeat the mistakes of the past. Founders of religion found enlightenment with such retreats, as did Buddha by withdrawing to the forest, Mohammed to his tent and cave, and Jesus to the desert. The moment mankind ceases to live by ideas it feels lost and demoralized.

Not all are capable of the reflective consciousness. Those who can turn ideas over days and nights are few and far between. While men in a group only feel, it is only an individual who can think positively and constructively. Creative individuals can provide the fertile ground for ideas and ideals to germinate. They can create new values for society, set up new moral standards to which life of community should endeavour to conform. A man's value to the community depends upon how far his feelings, thoughts and actions are directed towards promoting the good of his fellows.

Attitudinal Change

Ideas and ideals are not enough. For the inculcation of a system of values, change in attitudes is desirable. It should begin with a change in our system of beliefs. With the impetus set in motion by the acquisition of knowledge and experience, our emotions provide motivational drives. When the predisposition of the human mind becomes more pronounced and inclination inevitable, it leads to attitude formation. More than anything, attitudes have an inherent sense of direction and bid fair to flow in positive channels, grow, blossom and bear fruit. To the fund of ideas and ideals, positive and constructive attitudes impart a dynamism with a sense of right direction. It is the alchemy of right attitudes that transforms ideas into ideals, as they emerge pure and chaste, tested and tried in the ordeals of life. Karl Marx was well aware of the potency of ideas and ideals when he said : 'No army in the world is as powerful as an idea whose time has come.'

A Strategy Oblique

It is too much to thik of reforming the youth in the process of informing their minds. Programmes of preaching and proserlytization,more often generate a resistance if not a reaction. Brainstorming as a strategy has an effect which is short-lived. Idea stimulators may be part of the principles of applied imagination and creative techniques. Far from these direct approaches, which may not be rewarding, an oblique strategy may hold out a promise when the direct has not made any dent in the defences of the people. The human psyche operates below the level of consciousness. The unconscious had all along been considered the repository of evil. It is interesting to discover what exists in the psyche outside of consciousness. Sigmund Freud had subjected searchlight on the dark and dirty psychic hinterland. Drops that fall directly do spatter, but those that descend obliquely bid fair to stay and sink into human consciousness. When man's conscious life has lost a system of values, there are compensations in the unconscious. Such is the psychic law.

The unconscious had a hold, it was believed, only on the sick. Even the healthy seem to be fascinated by it. Dark as are these forces of human nature, light is bound to emerge from this area of darkness. The stagnant pond may have dirt and filth but overnight beautiful flowers may open as do lotuses. The unconscious is the veritable repository of true values. The psychic depths are, according to Carl Jung, nature and nature is creative life. Buck Rodgers in his recent book, *Getting the Best out of Self and Others* (Harper & Row, New York 1987, p. 22) narrates an experiment conducted by an Australian psychiatrist who contracted three professional prostitutes to come to his apartment. When they showed up, he paid them their fee and told them to disrobe. Without any hesitation, the three women started undressing. He stopped them, told them to put on their clothes and informed them of his plan to hypnotize. He hypnotized them and trance was soon achieved. In that condition they carried out his orders most implicitly when he asked them to hop like kangaroos and stand on leg without moving a muscle. Then he, in that altered state of consciousness asked them to disrobe. Lo ! they wouldn't, do it. The psychiatrist concluded that people will not do anything under hypnosis that offends their true values.

To tap the potential of the unconscious and make it obey the orders of the conscious mind demands a discipline as strenuous as any. It is a heroic venture of salvaging wealth from the mental hinterland as do pearls from the sea bed. One can come to the pristine experience by exploring the realm of the unconscious as did Buddha sweeping aside his two million gods. The inculcation of values and their articulation sets guidelines for man's behaviour. Sometimes there may be a conflict between a value system and man's behaviour. One can identify areas of conflict by writing down on a sheet of paper one's values, ideals and beliefs. The next day the same man may record the way he spends his time and energy. By comparing the two lists, one can identify where the values are at variance with our behaviour.

'As man thinketh, so he is'. What we think, believe and feel affect the quality of life, which, in turn, influences our level of performance. The Education Commission had earlier stressed that 'a search for the knowledge of self, of the meaning of life, of the relationship of man to other human beings and to the ultimate reality' must inform all our educational endeavours. The same view stands reflected and reiterated in the New Education Policy. England had introduced religious education in schools by the Education Act of 1944. Since religion became the main basis of the great divide in the subcontinent, our constitution framers distrusted its potential in a plural society like ours. While the lives and teachings of the religious reformers are included in the syllabus at the school level, it is imperative that comparative religion should find a place at higher level.

Human Values through Sciences

The projection of human values through appropriate life situations comes home to the students of literature with a greater degree of impact. Even the teaching of science organised imaginatively, can lay bare the broad spectrum of values to be cherished. The world of science, of our universe with planets in their respective orbits, does more than establish that it is a cosmos we live in and not a chaos. The well-marked regularity and precision can, at no count, be missed. In the plant world, the interdependence between the root system and the shoot system—the roots harbouring the bacterial nodules for fixing the subsoil nitrogen and the shoots providing the sap and succour for the bacteria—more than illustrate the principle of symbiosis, of mutuality of help prevalent in nature. The science of ecology lays bare nature's scheme of maintaining purity of our environment, of ensuring harmony between our flora and fauna, which man is seeking to disrupt in his haste to make the fast buck. The mysteries and perplexities of nature hold out an untapped potential of value system for man to profit by.

Foundation Lectures & Seminars

Despite the packed academic schedule, Universities do cater to the felt need of organising foundation lectures, at least six in an academic year as is done in Karnatak University, Dharwad. On the same lines, Science Weeks and Jathas do create and sustain a refreshing awareness of the science potential of the country that gave to the world a prodigy like Shri Ramanujam and a genius like Sir C.V. Raman. Even religious functions could provide food for the minds shorn of rituals and ceremonies confined to the homes. The third component of our educational venture namely extension, besides teaching and research, could throw a vast net to catch the rich treasures of our rare heritage. Such occasions impart a vibrancy to the ideals of integration and harmony which hold out fair prospects of coming home to our business and bosoms so naturally.

The Directorate of Collegiate Education in Karnataka organised one day regional seminars at Bangalore, Gulbarga, Dharwad, Mangalore and Devangere with the theme of human values in education.

The participants in these seminars were the principals and representative teachers, sometime 2, sometime even 5 from each institution who were exposed to the thinking of practising teachers from other regions thereby achieving integration through mobility thoughtfully mooted in the New Education Policy. Circular instructions were issued to follow these up with colloquia at the collegiate level.

Teachers' Role

More often we are driven to godmen and saints to establish the efficacy of values in modern times. This tendency generates in its wake a feeling that one need be a saint to have values, sinners as we are in this world, more sinned against than sinning. Since the exposure of these enlightened men to the youth is minimal, with their life more confined to isolation, it is necessary that men of wisdom and culture exemplify the values it were by externalising what is below the level of consciousness. Values must speak out, loud and bold through one's behaviour and conduct. Teachers as a community do provide a maximum exposure to the student community. Their attitudes and ideals impinge upon the nascent minds unmistakably. A teacher can radiate values as much through what he says as through what he is. □

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NEW SCIENCES & TECHNOLOGIES

Hon'ble Shivraj V. Patil Chakurkar, Minister of State for Civil Aviation and Tourism, Govt. of India, referred to the emerging sciences and technologies like electronics, genetics, informatics, photonics, nuclear, ocean and space sciences and technologies and urged the universities to develop new methods of management and administration and ways of life so that these technologies are put to effective use. Shri Chakurkar was delivering the Convocation Address at the 30th Annual Convocation of the Marathwada University. Excerpts

On the horizon, in the world, today, new sciences and technologies are making their appearances. They are electronics, genetics, informatics, photonics, nuclear, ocean and space sciences and technologies. For some years to come, they are going to dominate the scene and influence all kinds of human activities and processes of development. In India, in our Universities and other institutions, some studies are being done in these fields. But, it has become necessary for us to acquire proficiency in these areas as to cope up with the challenges in the world, today and in future. Therefore, it would be a correct thing to pay more attention to these areas and provide necessary facilities for learning and teaching them in our Universities. They are the sciences and technologies which would help us to develop our agriculture, industry, education, communication and many other things and make use of the resources on the land, in the oceans and in the space.

Convocation

The new sciences and technologies are going to need new methods of management, administration and new ways of life. We would not be able to make use of the new sciences and new technologies in the best possible manner, with the old systems and methods of management and administration and ways of life.

While enough is being done in the world to develop new sciences and technologies, it is felt that enough is not being done to develop new mothods of management and administration and ways of life. It would, therefore, be necessary for us and our Universities to put in more efforts to develop in both these areas.

Everything is related to the totality. Nothing is separate from the entirety. Knowledge is truth, which can in reality be nothing less than the totality. These days, we study subjects to become experts. At times, we get knowledge of fragments. However, to really know is to have the essence of totality.

Those who go out from the University should have the universal approach to the life. They should endeavour to imbibe the essence of totality. If they have their attention concentrated on fragments, their knowledge would be incomplete and dangerous.

But, can they know the totality? They may not know the detailed facts about the totality. But, they can certainly know the essence of totality.

This kind of realisation can be acquired by studying one or a few subjects in greatest details and going to the last word in them. The last word would then appear to be related to the totality and would give the essence of the same.

This can also be done by extending the vision to all things existing and making it all pervasive.

The problem of the education is to make man capable of knowing the totality of existence. If he does not know it, he remains, he becomes imbalanced which creates the problems. Today, the world does not suffer in reality from the problem of scarcity of resources or knowledge. It suffers from imbalances and disharmony. There is great imbalance between the east and the west, between the north and the south, between the man and the nature, between those who have and those who do not have. Hence, the disharmony, from it flows the danger of annihilation and extinction of life itself. If the harmony is restored, if the imbalance is corrected, if the unity is established and realised, all the problems would disappear and the purpose of life would be realised. □

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Code of Professional Ethics For University and College Teachers

The University Grants Commission (UGC) has formulated a code of professional ethics for university and college teachers. As the code has been adopted after discussions with teachers' representatives, it is desired to be a moral binding upon the teaching community. The UGC has also expressed the hope that the universities while framing service conduct rules will refer to it in a manner that will help the higher education system. The Code is being reproduced in full for the benefit of our readers.

Preamble

1. Goal of Higher Education in our Country

The basic purpose of education is to create skill and knowledge and awareness of our glorious national heritage and the noble achievements of human civilisation, possessing a basic scientific outlook and committed to the ideals of patriotism, democracy, secularism, socialism and peace, and the principles enunciated in the Preamble to our Constitution.

Higher education has to produce capable leaders of society and economy for manifold activities committed to the aforesaid ideals.

Higher education should strive for academic excellence, progress of arts and science. Education and research should be conducted in conformity with our national needs and priorities and ensure that our best talents make befitting contributions in the international endeavour.

II. Teachers and their Rights

Teachers should enjoy full civic and political rights of our democratic country. Teachers have a right to adequate emoluments, social position, just conditions of service, professional independence and adequate social insurance.

The Code of Professional Ethics

I. Teachers and their Responsibilities

Whoever adopts teaching as a profession assumes the obligation to conduct himself in accordance with the ideals of the profession. A teacher is constantly under vigilant eyes not only of his students but also of society at large. Therefore, every teacher should see that there is no incompatibility between his precepts and practice. The national ideals of education which have already been set forth and which he/she should seek to inculcate among students must be his/her own ideals. The profession further requires that the teachers should be calm, patient and communicative by temperament and amiable in disposition.

Teachers should

(i) adhere to a responsible pattern of conduct and demeanor expected of them by the community;

(ii) manage their private affairs in a manner consistent with the dignity of the profession;

(iii) seek to make professional growth continuous through study and research;

(iv) express free and frank opinion by participation at professional meetings, seminars, conferences, etc. towards the contribution of knowledge;

(v) maintain active membership of professional organisations and strive to improve education and profession through them;

(vi) perform their duties in the form of teaching, tutorial, practical and seminar work conscientiously and with dedication;

(vii) cooperate and assist in carrying out functions relating to the educational responsibilities of the college and the university such as assisting in appraising applications for admission, advising and counselling students as well as assisting in the conduct of university and college examinations, including supervision, invigilation and evaluation; and

(viii) participate in extension, co-curricular and extra-curricular activities including community service.

II. Teachers and the Students

Teachers should

(i) respect the right and dignity of the student in expressing his/her opinion;

(ii) deal justly and impartially with students regardless of their religion, caste, political, economic, social and physical characteristics;

(iii) recognise the difference in aptitude and capabilities among students and strive to meet their individual needs;

(iv) encourage students to improve their attainments, develop their personalities and at the same time contribute to community welfare;

(v) inculcate among students a scientific outlook and respect for physical labour and ideals of democracy, patriotism and peace;

(vi) be affectionate to the students and not behave in a vindictive manner towards any of them for any reason;

(vii) pay attention to only the attainment of the student in assessment of merit;

(viii) make themselves available to the students even beyond their class hours and help and guide students without any remuneration or reward;

(ix) aid students to develop an understanding of our national heritage and national goals; and

(x) refrain from inciting students against other students, colleagues or administration.

III. Teachers and Colleagues

Teachers should

(i) treat other members of the profession in the same manner as they themselves wish to be treated;

(ii) speak respectfulty of other teachers and render assistance for professional betterment;

(iii) refrain from lodging secret complaints against colleagues to higher authorities; and

(iv) refrain from raising questions of caste, creed, religion, race or sex in their professional endeavour.

IV. Teachers and Authorities

Teachers should

(i) discharge their professional responsibilities according to existing rules and at the same time undertake the responsibility to initiate steps through their own institutional bodies and/or professional organisations for change of any such rule deterimental to the professional interest;

(ii) refrain from undertaking any other employment and commitment which are likely to interfere with their professional responsibilities;

(iii) cooperate in the formulation of policies of the institution by accepting various offices and discharge responsibilities which such offices may demand;

(iv) cooperate through their organisations in the formulation of policies of the other institutions and accept offices;

(v) cooperate with the authorities for the betterment of the institutions keeping in view the interest and in conformity with dignity of the profession;

(vi) should adhere to the conditions of contract;

(vii) give and expect due notice before a change of position is made; and

(viii) refrain from availing themselves of leave except on unavoidable grounds and as far as practicable with prior intimation, keeping in view their particular responsibility for completion of academic schedule.

V. Teachers and non-Teaching Staff

(i) Teachers should treat the non-teaching staff as colleaques and equal partners in a cooperative undertaking, within every educational institution;

(ii) Teachers should help and function joint staff-councils covering both teachers and the non-teaching staff.

VI. Teachers and Guardians

Teachers should

(i) try to see throught eachers' bodies and organisations that institutions maintain contact with the quardians of their students, send reports of their performance to the guardians whenever necessary and meet the guardians in meetings convened for the purpose for mutual exchange of ideas and for the benefit of the institution.

VII. Teachers and Society

Teachers should

(i) recognise that education is a public service and strive to keep the public informed of the educational programmes which are being provided;

(ii) work to improve education in the community and strengthen the community's moral and intellectual life;

(iii) be aware of social problems and should take part in such activities as would be conducive to the progress of society and hence country as a whole;

(iv) perform the duties of citizenship, participate in community activities and shoulder responsibilities of public offices; and

(v) refrain from taking part in or subscribing to or assisting in any way any activity which tends to promote feeling of hatred or enimity among different communities, religions or linguistic groups and actively work for National Integration.

Value Judgment of Research

Dr. D.M. Nanjundappa, Vice-Chancellor of Bangalore University observed recently that scientists could not isolate themselves from value judgments about the application of their research. He emphasised that scientific research was not for destruction but for the welfare of humanity. He was inaugurating an international seminar on direct nuclear reactions organised by the physics department of the university.

While policy-makers had to translate research to action which would benefit the public, scientists should also express their views, he said. Referring to the controversy about the Kaiga nuclear power plant, he said that opponents of the plant claimed that other countries were shutting down their atomic plants. But, he said, those countries were already economically developed. Scientists should insist that the plant be started after the displaced people were resettled. These people should also be given alternative means of livelihood.

Dr. Nanjundappa said that there had to be a balance between environmental protection and development. Safety was also a major concern while developing alternative energy sources.

Quoting Jawaharlal Nehru, he said India had a legacy of the scientific temper. Science had given humanity the power to remove poverty but men were unwilling to use it and hence unequal distribution of wealth continued. He regretted that millions of dollars were being spent on research which would lead to the destruction of humanity. Science, if properly used, could lead mankind from death to immortality, he said.

About 100 scientists, including 25 from various other countries, participated in the four-day seminar.

Refresher Course in Commerce

Prof. D.P. Barua, Vice-Chancellor, Gauhati University, recently inaugurated the first Refresher Course in Commerce, sponsored by University Grants Commission and organised by the Department of Commerce in co-ordination with the Academic Staff College, Gauhati University. Prof. Barua, in his address, hoped the recommendations of Ninth Finance Commission as well as remodelling of Centre-State Financial Relations would be discussed at the Course.

Presiding over the inaugural function Prof. J.M. Choudhury, ex-Vice-Chancellor, Gauhati University, emphasized that the commerce teachers should cope with the changing demands and needs of time.

The chief guest Sri P.C. Barua, Director, North-Eastern Institute of Bank Management, stressed the need for equipping the commerce teachers in respect of recent amendments to the Companies Act, Income Tax Act and other Industrial Legislations, which had direct bearing on the commerce education. Dr. P. Sharma, Director of the Academic Staff College dealt with the background and perspectives of the Refresher Courses in the context of new education policy announced by the Central Government.

Scaring Away the Rodents

A scientist at the Jawaharlal Nehru University has developed a simple and inexpensive electronic device to scare away rodents instead of instantaneously killing them. According to Dr. J. Behari, Associate Professor at the School of Environmental Sciences at JNU, the new device offers greater promise in foodgrain godowns where foodgrain worth millions of rupees is destroyed or devoured by rodents every year.

This instrument emits frequency waves in air in all directions bringing about panic and stress conditions upon the rats' acoustic nerves and cerebrum which in turn causes disorientation and confusion. The result is that rodents try to get away from the godown as early as possible. The effect of the ultra-sound is that they eat less, reproduce less, develop low-body-resistance and become inactive.

The instrument has been developed by Dr. Behari through a project grant from the Department of Electronics, Govt. of India. The technical assistance was provided by Shri V.P. Arya of the Science and Instrument Centre at JNU.

IPHA Meets at BHU

"Public Health Practices in India the Current Trends" was the theme of the three-day national conference of Indian Public Health Association (IPHA) that recently concluded at the Banaras Hindu University. The conference focussed on important health programmes such as primary health care, maternal and child health, family welfare, immunization, control of communicable diseases, etc. It also deliberated as to how these useful programmes could best reach the grassroot level communities, especially those living below the poverty line, including the tribal population of the country.

Dr. P. Micovic, WHO representative in India in his inaugural remarks observed that the public health programmes could play a role of coordinators in the massive health programmes between the various agencies. He said that India was quite capable with her resources and expertise in achieving the goal of health for all by 2000 A.D.

Prof. R.P. Rastogi, Vice-Chancellor of BHU in his presidential remarks while outlining the philosophical basis of public health called for working out practical aspects of public health.

The conference was hosted by the Preventive and Social Medicine Department of the University in which about 500 delegates participated.

Discovery—A New HRD Tool

The first national conference on Human Resource Development (HRD), held in New Delhi recently, saw the unveiling of 'Discovery', a new HRD tool modelled on the ancient snake and ladder game to inculcate value awareness among employees leading to an improved work ethos in the organisation.

Developed by an HRD manager, Mr. J.M. Sampath, Discovery is an entirely new concept in employee motivation, which intends to put across powerful issues in a subtle manner where the learner, while being entertained is also educated. Discovery is based on the premise that the root of most, if not all, organisational problems is a lack of awareness of human values.

The game uses a collection of 100 short stories, each relating to a particular value represented by a square on the chequered play-chart with snakes and ladders. Discovery can be played on three different levels engendering three stages of learning, namely, explicit learning, experimental learning, and introspective learning. These three levels coupled with the short stories initiate a process of self questioning, which helps the players see themselves more clearly.

The game differs from the existing methods of curative and maintenance approaches to HRD problems solving in the sense that it provides a preventive mechanism to organisational problems.

Combined Entrance Test

Forms for the combined entrance examination for admission to M.Sc./M. Tech. in Biotechnology of the Jawaharlal Nehru University and 8 other universities are now available at the JNU, New Mehrauli Road, New Delhi. The examination is scheduled to be held on 22 May, 1989 at 27 Centres spread all over the country. These Centres are located at Ahmedabad, Bangalore, Baroda, Bhubaneshwar, Bombay, Calcutta, Chandigarh, Cochin, Dehradun, Delhi, Gauhati, Hyderabad, Indore, Jaipur, Lucknow, Madras, Madurai, Patna, Pune, Ranchi, Shillong, Srinagar, Vijayawada, Varanasi, Goa, Pant Nagar (U.P.) and Coimbatore.

Last year 5 universities including JNU had joined the combined entrance examination. However, with 4 more universities joining the joint test during the current academic year, the number of universities has risen to 9. Besides JNU, the universities are BHU, M.S. University of Baroda, Madurai Kamaraj University, Jadavpur University, Poona University, G.B. Pant University of Agriculture and Technology (Pantnagar), T.N. Agriculture University, Coimbatore and Goa University.

Forms will be available till the 11th of April, 1989 and the last date for the receipt of completed application forms is 15 April, 1989. Candidates who are due to appear in the respective qualifying examination are also eligible to sit in the entrance examination.

Biotechnology is a newly emerging multi-disciplinary area on the educational scene and programmes have been developed to meet the growing demand of trained manpower for a meaningful biotechnology activity in the country.

The programmes are designed to expose the students to recent developments in the area of Genetic Engineering and Biotechnology as well as their exploitation in industry, agriculture and medicine.

Summer School in Statistics

The Division of Theoretical Statistics and Mathematics of the Indian Statistical Institute proposes to organise a 'Summer School in Statistics' at Bangalore during May 15—June 10, 1989. Intended primarily for teachers and research workers, the objective of the school is to present before the participants some of the latest developments in selected areas and also to introduce them to some prospective areas for further research. The area proposed to be covered are the Large sample and Non-parametric methods; Linear estimation (including Variance components estimation); Analysis of dependence and association; Bayesian Inference; Finite population sampling; Analysis of discrete and directional data. The Course will be in the form of lectures followed by group discussions and seminars. Participants are encouraged to give seminar talks on topics of their interest.

The Institute supports all the participants with return second class railway fare and free board and lodging. The last date of receipt of applications is 20 March, 1989.

Further details can be obtained from the Course Director, 'Summer School in Statistics : 1989', Division of Theoretical Statistics and Mathematics, Indian Statistical Institute, 203 Barrackpore Trunk Road, Calcutta 700 035.

AWARDS AND MEDALS

- Prof. S.K. Ghua of the Indian Institute of Technology, Delhi and Dr. Sneh Anand of the All India Institute of Medical Sciences, Delhi have been declared joint winners of the "National Technology Awards-89", for the welfare of the handicapped. They will receive a citation each and share the cash award of Rs. 20,000. The two scientists have been selected for the award for developing a central lathe attachment and braille micrometre for the blind. The award was introduced by the Social Welfare Ministry last year for the best technological inventions.

- Dr. (Mrs.) V. Sirohi, Computer Science & Engineering Department of the IIT, Madras has been awarded Hari Om Ashram Prerit Bhaikaka Inter University Smarak Trust Prize in Mechanical Engineering for the year 1987 for the paper entitled Powell-Eyring Model Flow Near an Accelerated Plate, which was co-authored by her.

- Prof. P.T. Manoharan, RSIC, IIT, Madras has been unanimously selected for Professor Santi Ranjan Palit Memorial Award (Physical Chemistry)—1989. The Award carries a cash and a citation.

Communication

AUTONOMY IN ACTION

College-Industry Cooperation

Sir,

In order to inject some real-life flavour in its programme, the Department of Chemistry, the American College (Autonomous), Madurai, decided to offer under autonomy, two one-semester elective courses of 4 hours duration in its undergraduate programme of studies. One of them was Industrial Chemistry and the other Industrial Chemistry Laboratory. The course content in each of these courses was determined in consultation with local industry and included several topics of chemical interest pertaining to the textile and electro-chemical industries. For about 5 years from inception in 1980, the course in industrial chemistry was taught by personnel drawn from industry while in the course in industrial chemistry laboratory, the laboratory facilities of a local participating industry were used for some of the practical exercises. Deputed teachers from the Department of Chemistry attended the lectures given by the external personnel and supervised the laboratory exercises done within the College and in the industrial premises, and carried out the assessments of the students in the courses. Madura Coats, Madurai and the Central Electrochemical Research Institute, Karaikudi participated in this experiment of the Department of Chemistry of the American College. With the experience gathered in the first five years of college-industry cooperation, the Department gained the expertise to run the courses by itself and has been doing so from 1985.

For the College and the cooperating industry, this experiment in mutual cooperation in formulating and teaching specialized courses was very valuable. The students got a very definite real-life flavour from the courses.

From our experience, we would state that such experiments require proper advance planning for success and special arrangements to sustain the interest of participating industry. What really helped us was the inclusion of experts from industry in our Departmental Board of Studies and the College Academic Council. We had also to begin planning on the courses approximately a year in advance.

Another feature that emerges is that not all industries in the locality are interested in this kind of industry college co-operation. We had only a 15% positive response from the industries that we corresponded with. Several wouldn't even reply to letters written and some replied in the negative.

Anyway, we feel convinced that the efforts for cooperation must continue. In the short run, the college may gain much more than industry, but in the long run, we may hope that such cooperation would lead to work in colleges for the development of processes and products which may be of great value to industry.

Yours etc.

A.R. Venkitaraman

Postgraduate Professor of Chemistry,
The American College (Autonomous)
Madurai-2625002

News from UGC

INSAT-1B Programme of UGC

Between 7th March to 17th March, 1989 the following schedul- of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV Network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

7.3.89

"Secondary Classroom Management Techniques"
"Methods of Physical Rehabilitation"

8.3.89

"Water Proofing of Mud Houses"
"In Search of the Past—Lost Civilisation of Africa"
"Flower a Modified Shoot"

9.3.89

"Memories—II"
"Literature and Society—A Dialogue with S. Ganesalingon"

10.3.89

"Comet : The Indian Connection"
"India's Population Problem—II"
"Hurricane Below"

11.3.89

"Handicrafts of Andhra Pradesh—IV"
"Interview with Abdul Wali Khan"
"Discussion on Dr. Radhakrishnan's Philosophy"

12.3.89

No Telecast

13.3.89

"The Origins of Quantum Theory From Planck to Bose Part—II"
"Indian Economy—II"
"The Fight Against Hunger—Man Made Protein—II"

14.3.89

"Images of Einstein"
"Preparing Students for a Change"
"Malaria"

15.3.89

"Technology Mission Biotechnology : An Interview with Sam Pitroda"
"In Search of the Past—Ceylon & Java"
"Induced Breeding in Frogs"

16.3.89

"Memories—III"
"Evolution of the Himalayas"

17.3.89

"Radio Astronomy & Indian Science"
"India's Population Problem—III"
"Trees of Hope"

News from Agril. Varsities

Krishi Kumbh

The G.B. Pant University of Agriculture and Technology will organise a five day All India Farmers' Fair and Agro-Industrial Exhibition, popularly known as "Krishi Kumbh" at Pantnagar from March 12, 1989. The main thrust of this fair would be on the management of soil, water and fertilizer alongwith food processing, agro-forestry and eco-development. The programme includes visit to crop, livestock, poultry and fisheries research stations besides a planned visit to Horticultural Research Station and demonstration plots in nearby villages. Arrangements have also been made for sale of seeds of new improved varieties of cereals and vegetable crops.

Agriculture and Economic Development

Inaugurating the three - day National Conference on "Changing Role of Agriculture in the Economic development in India" at Aligarh Muslim University (AMU), Prof. Ali Mohammed Khusro, an eminent economist, said that social forestry programme in India was not satisfactory. He suggested that agro-based industries like paper, textile and saw mills can be provided large length of land along canal banks, Railway lines and highways by leasing these lands for growing plantation. He pointed out that nearly five million hactares of land in India was lying unused because of 'improper link system' of irrigation channels at grass root level.

Prof. M. Shafi, Vice-President of International Geographers Union in his keynote address said that agriculture played a very important role in the economic development of India. There was hardly any section of economic development which was not affected by changes in agricultural development.

The Vice-Chancellor of AMU, Sayed Hashim Ali, who presided, said that the bane of country's agriculture was that there was poor interaction between agriculture and irrigation management in the country.

More than one hundred delegates from all over the country and abroad participated in the conference.

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month', while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research Scholars and students of education are welcome to use these resources. The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

ADDITIONS TO AIU LIBRARY

Abdul Kareem, P. *Education and socio-economic development.* New Delhi, Ashish, 1988. xi, 95p.

Aggarwal, Yasb. *Education and human resource development : Emerging challenges in the regional context.* New Delhi, Commonwealth Publishers, 1988. 331p.

Amrik Singh and Sharma, G.D., ed. *Higher education in India : The social context.* Delhi, Konark (c 1988) xii, 339p.

Azad, Abul Kalam. *India wins freedom : The complete version.* Hyderabad, Orient Longman (c 1988) xiv, 283p.

Baikie, Adamu, ed. *Higher education and development in the context of the Nigerian Constitution.* Benin, University of Benin, 1982. ix, 298p.

Bavakutty, M. *Libraries in higher education.* New Delhi, Ess Ess Publications, 1988. 130p.

Blue, Adrianne. *Grace under pressure : The emergence of women in sport.* London, Sidgwick & Jackson (c 1987) xv, 213p.

British Council. National Academic Recognition Information Centre. *International guide to qualifications in education.* London, Mansell (c 1987) xiv, 719p.

Chakrabarti, Mohit. *Philosophy of education of Rebindra Nath Tagore.* New Delhi, Atlantic Publishers and Dist. (c 1988) 107p.

Gupta, Ram Chandra. *Whither Indian education : An appraisal of Indian education from the vedic age to the present day.* Delhi, B.R. Publishing Co., 1988. xiv, 243p.

India. Ministry of Human Resource Development. *Muslim female education in Metropolitan City of Calcutta : A perspective study of an urban minority (1971-81).* New Delhi, Author, 1987. 79p.

———. *National literacy mission.* New Delhi, Author, 1988. 59p.

———. *National perspective plan for women, 1988-2000 A.D.* New Delhi, Author, 1988. 197p.

India. University Grants Commission. *Development of an information and library network : Report of the inter agency working group.* New Delhi, Author, 1988. xxxi, 472p.

———. *Report of the Task Force on performance appraisal of teachers.* New Delhi, Author, 1988. discontd.

International Seminar on Higher Education in Asia (3rd) (Hiroshima) (1987). *Public and private sectors in Asian Higher Education systems; issues and prospects : Report.* Hiroshima, Research Institute for Higher Education, 1987. x, 97p.

Jayaswal, P.K. *Indian academic libraries : Cost management and utilization.* Delhi, Kalinga, 1989. viii, 173p.

Jones, David. *Adult education and cultural development.* London, Routledge (c 1988) 228p.

Lewin, Keith M. *Education in austerity : Options for planners.* Paris, Unesco : IIEP, 1987. 131p.

Nagendra Singh. *Modernization of teacher education : An Indian experience.* New Delhi, Commonwealth, 1988. xi 176p.

Nautiyal, K.C. *Education and rural poor : A study in economics of rural education.* New Delhi, Commonwealth Publishers, 1989. xvi, 238p.

Netherlands. Ministry of Education and Science. *Dutch higher education and research.* Netherlands, Author, 1988. 435p.

Pandey, R.S. *Preface to Indian philosophy of education.* Aligarh, S.K. Publishers, xvi, 167p.

Raja Rammohun Roy Library Foundation and Indian Library Association. *National policy on library and information system : A draft policy statement.* Calcutta, Raja Rammohun Roy Library Foundation, 1985. 9p.

Ram Reddy, G., ed. *Open universities : The ivory towers thrown open.* New Delhi, Sterling (c 1988) viii, 270p.

Seminar of Scientists, Technologists and Social Scientists (New Delhi) (1988). *Science, technology and social sciences—Interrelations in eradicating rural poverty : Report.* New Delhi, Indian Association of Social Science Institutions, 1988. 29p.

Sen Gupta, Alpana. *Determinants of educational attainment.*

Sodhi, T.S. and Multani, N.S. *Comparative studies in adult education : USA, UK, USSR, Denmark, China, Kenya and India.* Ambala Cantt, Associated Publishers, 1989. 356p.

Srivastava, R.C. *Indian education in transition.* New Delhi, National Book Organisation, 1988. ix, 344p.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

HUMANITIES

Philosophy

1. Chowdhury, Mohammad Ashraf Ali. *The true way to purify soul in the Gita and the Koran.* Rabindra Bharati.
2. Farida Bi. *Indian idealism : A critical study.* Rohilkhand. Dr. J.P. Atreya, K.G.K. College, Moradabad.

Fine Arts

Drawing & Painting

1. Gautam, Abhai Kumar, *Adhyatmik pravrithi ke adhar per Kshitiandranath Majumdar ke chitron ka mulyankan.* Rohilkhand. Dr. Govind Behari Sharma, D.S. College, Aligarh.
2. Pande, Indira. *A critical study of material culture of Mughal painting under Akbar.* Rohilkhand. Dr. S.B.L. Saxena, Bareilly College, Bareilly.

Music

1. Chatterjee, Shyamal. *Aspects of the musical mind and learning in music.* Rabindra Bharati.
2. Chattopadhyay, Papri. *Banglar tappa abang thumri chaler gaan.* Rabindra Bharati.
3. Jauhari, Urmila. *Uttar Bharatiya talon ke nirman mein chandshastra aur lok sangeet ka yogdan.* Rohilkhand. Dr. Rama Ballabh Misra, Bareilly College, Bareilly,

Dance

1. Bandyopadhyay, Prasanta Kumar. *Nritya natyer utpatti-o-kromobikash.* Rabindra Bharati.

Language & Literature

1. Gargash, Ravinder. *A framework for a linguistic analysis of literary style.* Delhi.
2. Sharma, Vijay Parshad. *A stylistic analysis of figurative language with special reference to metaphor and metonymy.* Delhi.

English

1. Chakraborti, Subhash Chandra. *The art of Arnold Wesker the English dramatist.* NBU.
2. Khan, Jaleel Ahmed. *A study of Ford Madox Ford, 1873-1939 : As a novelist and technical innovator.* Rohilkhand. Dr. T.K. Ramachandran, N.M.S.N. Dass College, Budaun.
3. Mukhopadhyay, Ajit Kumar. *W.B. Yeats as a dramatist.* Calcutta,
4. Rai, Ram Shanker. *Adverbs in Indian English : An analytical study.* Barkatullah. Dr. H.L. Shukla, Prof. and Head, Department of Comparative Language and Culture, Barkatullah Vishwavidyalaya, Bhopal.
5. Waldo, Jutika Tracianne. *A study of symbolism in the poetry of Walt Whitman.* Nagpur. Dr. V.R. Kanadey, Prof. and Head, Department of English, Nagpur University, Nagpur.

Russian

1. Buwa, Nandkishore. *A comparative study of Russian case system with the system of cases in modern Indian languages : On the basis of Hindi and Marathi in Russian.* Karnatak. Dr. D.B. Dhawan, Reader, Department of Foreign Languages, Karnatak University, Dharward.

Sanskrit

1. Angiras, Ashutosh. *A critical and comparative study of pratyabhijna and pratibha in Trika system of Indian philosophy.* Panjab.
2. Bhattacharya, Ramakrishna. *Samskrta gadyasahitye Harsacariter mulyayan.* Babindra Rharati.
3. Chatterjee, Sharmila. *Sanskrit natakon mein ekalap.* HS Gour, Dr. R.B. Tripathi, Head, Department of Sanskrit, Dr. Harisingh Gour Vishwavidyalaya, Sagar.
4. Gargya, Saroj, *Bhairavi ke kavya mein rasa alankara evam auchitya : Eka adhyayan.* Panjab.
5. Mahadevaiah, B.S. *Rasa theory from Mammata to Jagannatha.* Bangalore. Dr M. Shivakumara Swamy, Prof. and Head, Department of Sanskrit, Jnana Bharati Campus, Bangalore University, Bangalore.
6. Mishra, Devendra, *Ruyyak krit alankar sarvasva kee tikaon ka adhyayan.* Delhi.
7. Rai, Shashi Kant. *Kalidasa kee kritiyon kee auchitya siddhant parak sameeksha.* Delhi.

Punjabi

1. Labh Singh. *Punjabi Kavishri da rupak vivechan : Malvai parampara de sandarbh.* Panjab.

Hindi

1. Abinash Chander. *Vyaktitva vighatan kee prakriya ke sandarbh mein swatantrayottar Hindi natak.* Panjab.

2. Dwivedi, Gobind Prasad. *Hindi upanyas, 1961-70 ka dashak*. Awadhesh. Dr. Arya Prasad Tripathi, Coordinator, Rashtriya Seva Yojana, Awadhesh Pratap Singh University, Rewa.

3. Giri, Vipin Kumar. *Amrit sahitya mein jeevan darshan*. Rohilkhand. Dr. Usha Jain, Vardhman College, Bijnor.

4. Gupta, Usha. *Mohan Rakesh ke natakon ka shastriya adhyayan*. Saurashtra. Dr. G.D. Agrawal.

5. Jain, Shobhna. *Hindi kee pragativadi kavyadhara ke pariprekshya mein Kedarnath ke kavya ka anusheelan*. Awadhesh. Dr. Ganga Prasad Gupta, "Barsaiyan", Prof and Head, Department of Hindi, Maharaja College, Chattarpur.

6. Jalajamany, K.S. *Athaven dashak kee Hindi kavita : Vastu aur roop*. Hyderabad. Dr. Shashi Mudiraj, Department of Hindi, University of Hyderabad, Hyderabad.

7. Lakha, Shirin. *Bastar ke adivasiyon ke namon ka bhasha vaigyanik adhyayan*. Ravishankar. Dr. R.C. Mehrotra, Prof. and Head, Department of Linguistics, Ravishankar University, Raipur.

8. Malaiya, Manjulata. *Sagar Jile ke sthan namon ka samajbhasha vaigyanik adhyayan*. H.S. Gour, 1980-89. Dr. P.K. Jain, Head, Department of Linguistics, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

9. Mehta, Asha. *Swadheenata andolan ke sandarbh mein Hindi kavita mein swachhandatavad ke vikas ka adhyayan*. JNU. Prof. K.N. Singh, Centre of Indian Languages, Jawaharlal Nehru University, New Delhi.

10. Pandey, Sarda. *Fanishwar Nath Renu ka upanyasik shilp*. Manipur. Dr. J.P. Singh, Department of Hindi, Manipur University, Imphal.

11. Puran Devi. *Hindi natakon ke nari patra : Prosad yug tak*. Delhi.

12. Sanjeeva. *Dinkar aur Dasharathi ke kavya mein rashtriya chetana*. Osmania.

13. Saraswathi Ammal, P. *Jainendra Kumar ke upanyason mein samajik bhavana*. Bangalore. Dr. Mithali Bhattacharjee, Lecturer, Department of Hindi, Bangalore University, Bangalore.

14. Saxena, Rekha. *Sathottar prabandh kavyon ke pratipadon ka akalan aur vivechan*. Rohilkhand. Dr. Shyam Gupta, Govt. Raza College, Rampur.

15. Sharma, Madhu. *Yashpal ke upanyas sahitya mein jeewan mulya*. Rohilkhand. Dr. Shashi Bala Agarwal, Sahu Jain College, Najibabad.

16. Sharma, Renu Rani. *Jaishankar Prasad ke natakon mein prayukt sanskritik shabadavali ka anusheelan*. Rohilkhand. Dr. Usha Jain, Vardhman College, Bijnor.

17. Shukla, Arun Kumar. *Hindi bhasha-kshetra ke pramukh ahindi bhashi nivasiyon kee bhashik-abhivriti ka samaj bhashavaigyanik adhyayan : Jabalpur Nagar ke adhar per*. Durgawati. Dr. T.N. Shukla, Department of Hindi, Rani Durgawati Vishwavidyalaya, Jabalpur.

18. Siddiqui, Jakia. *Dr. Harivansh Rai Bachchan ke sahitya mein swanubhuti aur yug chetna*. Rohilkhand. Dr. V.S. Bhardwaj, Bareilly College, Barielly.

19. Thrimurty, Pallapotu. *Sree Yashpal ke upanyason mein yug chetna*. Andhra.

20. Tripathi, Krishan Dev. *Ritikaleen swachhand kavya dhara ke sandarbh mein bodha ka vishishth adhyayan*. Vikram. Dr. Harimohan, Reader, Department of Hindi, Vikram University, Ujjain.

21. Vidyakumar, S.P. *Kannada sahityakar Swargeeya Triveni aur Hindi sahityakar Mannu Bhandari ke sahitya ka tulnatmak adhyayan*. Bangalore. Dr. (Mrs) Kanti Singh, D-11A, 2507, Netajee Nagar, New Dethi.

22. Wilson, Arthur S. *Dr. Vachan Dev Kumar kee kavya sadhana ka vivechan evam mulyankan*. Bangalore. Dr. (Mrs) Kanti Singh, D-11A, 2507 Netajee Nagar, New Delhi.

Urdu

1. Singh, Vijay Dev. *Prof. Mujib ke dramon ka fani aur taftaeedi jaeza : Stage dramon ke rawaet kee roshni mein*. Jammu. Dr. Khursheed Hamara and Dr. Devinder Singh.

Bengali

1. Basak, Bijoylaxmi. *Sailajananda Mukhopadhyaya : Jiban-o-sahitya*. Rabindra Bharati.

2. Basu, Rita. *Bangla lokakahinir rupa tattwik ekakgulir anwesan-o-bislesan : Samaj bibartaner pariprekshite ekti bichar*. Rabindra Bharati.

3. Das, Susantakumar. *Dwitiya Biswayuddhottar Bangla upanyas, 1942-72, mulyabodher vivartan*. Calcutta.

4. Mirbar, Kalyan Kumar. *Purba Bangler upanyaser samajik prekshapat, 1947-1971*. Rabindra Bharati.

5. Mitra, Manjusri. *Rabindranath-o-Banglar biplabi samaj*. Calcutta.

6. Ray, Dilip Kr. *Rabindra samakale Rabindra nataker Abhiroy*. Burdwan. Prof. Saktibrata Ghosh, Department of Bengali, University of Burdwan, Burdwan.

7. Raychaudhuri, Srilekha. *Smriti Chitrer shilproop-o-samaj chitra : Rabindra Nather jiban-smriti-Smiriti Kumar Biban katha*. Calcutta.

8. Roy, Prothama. *Bangla desher prabandha sahityer gatiprakriti, 1947-1980*. Rabindra Bharati.

9. Sinha, Santi. *Rarh Banger Tusu : Itihas, baichitra-o-bikas*. Rabindra Bharati.

Assamese

1. Deka, Namita. *Jatindra Nath Duwarah aru teur sahitya kritir samalochanatmak adhyayan*. Dibrugarh. Dr. Lila Gogoi, Reader, Department of Assamese, Dibrugarh University, Dibrugarh.

Oriya

1. Sahu, Suresh Kumar. *Oriya ritijugiya ekakshyaradya kabya*. Sambalpur. Dr. B.C. Jena, Reader, Department of Oriya, Sambalpur University, Jyoti Vihar, Burla.

Manipuri

1. Victoria Devi, B. *Hindi aur Manipuri kee vikas san rachana ka tulnatmak adhyayan*. Manipur. Dr. S. Tomba Singh, Assoc Prof. Department of Manipuri, Manipur University, Imphal.

Tamil

1. Balasubramanian, G. *A survey of methods for teaching Tamil as mother tongue from primary to secondary school level*. Madurai.

2. Vembulu, S. *Penn Makkat Peyargal*. Madurai.

Malayalam

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The Joint Entry Examination will be conducted at Allahabad, Bhubaneswar, Bombay, Calcutta, Dehradun, Delhi, Gauhati, Hyderabad & Madras.

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	(ii) Agril. Chemistry & Soil Science.	2	1	—	—	—	1	2
	(iii) Agril. Botany	1	1	—	—	—	—	1
	(iv) Agril. Entomology	2	1	—	—	—	1	2
	(v) Plant Pathology	1	1	—	—	—	—	1
	(vi) Horticulture	4	—	1	—	1	2	4
	(vii) Statistics	1	—	—	—	—	1	1
	(viii) Veterinary Science	1	—	—	—	—	1	1
2.	**Assistant Professor in the discipline of**							
	(i) Agronomy	3	—	1	—	—	2	3
	(ii) Agril. Chemistry & Soil Science	5	1	1	—	—	3	5
	(iii) Agril. Entomology	7	1	—	1	1	4	7
	(iv) Plant Pathology	4	1	1	—	—	2	4
	(v) Horticulture	5	1	1	—	—	3	5
	(vi) Agril. Economics	1	1	—	—	—	—	1
	(vii) English	1	1	—	—	—	—	1
	(viii) Mathematics	1	—	—	—	—	1	1
3.	Medical Officer	1	1	—	—	—	—	1
4.	Physical Training Instructor	1	—	1	—	—	—	1
5.	Assistant Librarian	1	1	—	—	—	—	1
6.	Veterinary Officer (2 Probable)	3	1	1	—	—	1	3
7.	**Senior Research Assistant in the discipline of**							
	(i) Agril. Botany (All probable)	5	1	1	1	1	1	5
	(ii) Agril. Chemistry (Probable)	1	1	—	—	—	—	1
	(iii) Agril. Engineering (2 probable)	3	1	1	—	—	1	3
	(iv) Statistics (All probable)	2	1	—	—	—	1	2
	(v) Food Science & Technology (1 probable)	2	1	—	—	—	1	2
8.	**Junior Research Assistant in the discipline of**							
	(i) Agronomy (3 probable)	6	2	2	—	—	2	6
	(ii) Agril. Botany (5 probable)	10	2	2	1	1	4	10
	(iii) Agril. Chemistry (3 probable)	6	1	2	—	1	2	6
	(iv) Agril. Entomology (Probable)	1	1	—	—	—	—	1
	(v) Agril. Economics (4 probable)	10	3	2	1	—	4	10
	(vi) Agril. Extension (1 probable)	2	1	—	—	—	1	2
	(vii) Plant Pathology (2 probable)	3	1	1	—	—	1	3
	(viii) Statistics	1	1	—	—	—	—	1

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OR

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OR

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Pay Scale : Rs. 1400-40-1600-50-2300-60-2600.

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6. The candidate applying for the post of Senior Research Assistant/Junior Research Assistant should indicate the name of discipline to which he desires to apply. He should submit seperate application for each discipline. The candidate/s selected in a particular discipline will not be allowed to change the discipline on the grounds that he/they have acquired Post-Graduation in other discipline.

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10. The person selected from teacher's cadre from this University can keep his lien in the teacher's cadre.

11. The Incomplete application and applications received after the last date shall not be taken into consideration.

12. The period of experience/higher basic academic qualification prescribed is relaxable, in respect of SC/ST category, as per Govt. orders

13. If Backward class candidates for which category the posts reserved are not available, other candidates form B.C. category will be considered for recruitment provided such recruitment, shall not be more than 50% of the posts advertised.

14. The posts which are reserved for B.C, category will be filled in from reserve category only. The applications of the candidates from open category will not be taken into consideration for filling up the posts reserved for B.C. category.

L.R. Kanawade
REGISTRAR

JAWAHARLAL NEHRU UNIVERSITY

NEW DELHI-110067

Advt. No. A&E-II/3/89

Applications are invited for the following posts :

I. FINANCE AND ADMINISTRATION

(1) **System Analyst** (Rs. 1200-1900 to be revised) Qualifications : (a) Atleast a second class (not less than 50% marks in the aggregate) Master's degree in Mathematics, Statistics, Econometrics, Operarional Research or Physics or atleast a second class (not less than 50% marks in the aggregate) Bachelor's degree in Engineering from a recognised instituton; and (b) Atleast 5 years experience in Computer Programming at a recognized institution and knowledge of atleast one of the high level languages like Fortran, Cobol, Algol, P/L-1 and extensive experience of developing programmes for complex problems. OR A Ph.D. Degree from a recognized institution in Computer related discipline like systems programming, numerical analysis artificial intelligence, Theory of Computability and Theory of formal languages.

(2) **Programmer** (Rs. 700-1600 to be revised) Qualifications : (a) Atleast a second class (not less than 50% marks in the aggregate) Master's degree in Mathematics, Statistics, Econometrics, Operational Research or Physics or atleast a second class (not less than 50% marks in the aggregate) Bachelor's degree in Engineering from a recognised institution; and (b) Atleast two years experience in Computer Programming at a recognised Institution and knowledge of one of the high level languages like Fortran, Cobol, Algol, P/L-1.

II. LIBRARY

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III. SCHOOL OF INTERNATIONAL STUDIES

(5) **Research Associate in American Studies Division :** Qualifications : First or high second class master's degree in Political Science / History / Economics and a Ph.D. in American Studies either with specialization in the US Foreign Policy or in the domestic sphere. **Scale of Pay** for Categories A, B, C and D will be Rs. 2200-100-2700, Rs. 2700-100-3200, Rs. 3200-100-3700, Rs. 3700-125-4325 respectively. **Age Limit : 45 years** for men and 55 years for women candidates. 10% of the posts of Research Associates are reserved for SC/ST candidates.

IV. SPORTS DEPARTMENT

(6) **Games/Physical Instructor/Assistant Director of Physical Education-** Reserved for SC candidates. (Rs. 2200-4000).

Essentiai: Qualifications: (a) A Master's degree in Physical Education (High Second Class) with diploma in sports coaching from the National Institute of Sports of Patiala. OR A Master's degree in Physical Education (High Second Class) with a record of having represented his University at the Inter-University level/State in the National Championship, (b) Experience in organising games and sports (as examplified in handling of about half a dozen teams in a year in his institution and their participation in University/Inter Collegiate tournaments) and ability to encourage mass participation in games and sports. **Desirable Qualifications :** Diploma in Coaching from the National Institute of Sports of Patiala in either of the following games (a) Atheletics, (b) Football, (c) Hockey, (d) Basketball, (e) Gymnastics, (f) Volley Ball.

Any of the qualifications/experience may be relaxed at the discretion of the University. It will also be open to the University to consider the names of suitable candidates who may not have applied.

Application forms may be obtained free of cost in person or by sending a self-addressed envelope (23 cm x 10 cm) duly stamped to the Deputy Registrar (Academic & Establishment-II), Room No. 204-B, Administrative Block, Jawaharlal Nehru University, New Delhi-110067. The applications in prescribed form complete in all respect duly forwarded by the competent Authority (for those in service) should reach this University latest by **20th March, 1989.**

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पठन-पाठन प्रक्रिया में सुविधा के लिये भारतीय विश्वविद्यालय संघ कई वर्षो से स्नातक व स्नातकोत्तर स्तर के विभिन्न विषयों पर अंग्रेजी भाषा में प्रश्न-बैंक प्रकाशित करता रहा है। इन प्रकाशनों में उपलब्ध सामग्री एवं सूचना शिक्षकों एवं विद्यार्थियों के लिये अत्यन्त उपयोगी सिद्ध हुई है।

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NATIONAL CHEMICAL LABORATORY

PUNE-411 008

(Council of Scientific & Industrial Research)

Advertisement No. 1/89

Applications in Prescribed Form are invited for the following posts in various divisions of this Laboratory. Separate application is required to be submitted for each post even if the posts applied for are from the same category/with same qualifications.

Chemical Engineering Division

Scientist 'C'—2 Posts

Post—I (Code No. 10I)

Candidate having strong background in Microbiology, with a Ph.D. and publications in reputed international journals. Two years experience in the field is essential. The candidate is expected to participate in the Bioscience and Engineering Research Programmes.

Post—2 (Code No. 102)

A Chemical Engineer with an M.Tech. and four years experience/Ph.D. in chemical engg./biochemical engg. with two years experience. Preference will be given to the candidate with experience in biological systems. The candidate is expected to participate in the Bioscience and Engineering Research Programmes.

Scientist 'B'—4 Posts

Post—1 (Code No. 103) (Reserved for SC candidate)

Ist class B.Tech./M.Tech. degree holders in Chemical Engineering from a reputed Institute/University with exposure to computer applications and mathematical modelling in chemical engg. The candidate is expected to participate in the Bioscience & Engg. Research Programmes.

Post—2 (Code No. 104)

The candidate should have a 1st class degree in chemical engg. One year's experience in industry involving development of technical software and the use of graphics is desirable. Exposure to advanced programming languages as well as chemical process control is also desirable. The candidate will participate in projects connected with development of software and process control.

Post—3 (Code No. 105) (Reserved for SC candidate)

The candidate should be a master's degree holder in chemical engineering or a Ph.D. in Physical Chemistry with experience in catalysis and high pressure reactions. **Job requirement** : The incumbent would join the Homogeneous Catalysis group engaged in catalytic process development.

Post—4 (Code No. 106) (Reserved for ST candidate)

The candidate should have doctoral degree in Physical Chemistry with a proven record of publications in the area of catalysis and catalytic reaction engineering. Strong background in numerical and computational methods and at least five years total research experience in reaction-diffusion problems and surface kinetics is desirable. Familiarity with modern theories of absorption desirable. The candidate will be required to develop software for reactor design purposes incorporating the latest concepts in surface science.

Polymer Chemistry Division

Scientist 'C'—1 Post (Code No. 107)

Ph.D, in Polymer Chemistry with two years experience in the area of design, synthesis and characterization of polymers. The candidate should have demonstrated experience in emerging new synthetic techniques in polymer chemistry and hands on familiarity with modern spectroscopic and other analytical tools for determination of polymer

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VIKRAM UNIVERSITY

UJJAIN

No. Dev./Estt/CDC/89/5326 **Dated : 22-2-1989**

Applications, in the prescribed forms, are invited for the Post of Director, College Development Council in the Scale of Rs. 4500-150-5700-200-7300 so as to reach the undersigned on or before **10th April, 1989.**

Qualifications

An eminent scholar with published work of high quality actively engaged in research. Ten years of teaching experience and/or research experience of guiding research at doctoral level.

OR

An outstanding Scholar with established reputation who has made significant contribution to knowledge.

The Director, College Development Council will be appointed on a tenure basis for three years. He may be re-appointed for another term of three years but not beyond the age of sixty five years when he would retire.

The prescribed application forms can be obtained from the undersigned on payment of Rs. 10/- in person or by sending crossed Indian Postal Order payable to the Registrar, Vikram University, Ujjain. If the form is required under Registered Post, Postal Order for an additional amount of Rs. 10/- should be sent to cover postal charges. Candidates in employment should send their applications through proper channel.

The University reserves the right to fill up or not to fill up the Post. No T.A./D.A. will be paid for attending the interview.

G.S. Gautam
REGISTRAR

structure and stereochemistry.

Division of Technical Services

Scientist 'B'—1 Post (Code No. 108)
(Reserved for SC candidate)

First class Master's degree in computer science or engineering (software) of a recognized Indian University or an equivalent degree of an university abroad. **Experience desirable :** 1-2 years in computerizing management, R&D project and other connected data and interpreting them. **Job requirement :** The selected candidate will be required to computerize management, project, techno-economic personnel and other data; retrieve them in required formats whenever required; and also interpret them as required by the management.

Scale of Pay Attached to the Post and Monthly Total Emoluments at the Minimum of the Scale

Scientist 'C' : Rs. 3000-100-3500-125-4500 (Rs. 4390/-)

Scientist 'B' : Rs. 2200-75-2800-EB-100 4000 (Rs. 3256/-)

Research Associate—1 Post (Chemical Engineering Division) (Code No. 109)

The candidate should have Ph.D. in Chemical Engineering/Chemical Technology with at least two years research experience. The candidate with background experience in separations, processes mixing or computer simulation would be preferred.

The candidate selected for RA will be placed in the slab of Rs. 3200-100-3700 with the provision for annual increase of Rs. 100/- depending on his/her satisfactory performance. In addition to the stipend, the RA will be entitled to HRA and medical benefits as admissible under the rules.

The upper age limit of the incumbent selected shall be 35 years as on 1st April of the year in which the application is made. A relaxation in age limit upto three years will be considered in the case of applicants who are suitably qualified and have research, training/experience, on the recommendations of the selection committee. In the case of SC/ST and women's applications, age relaxation upto five years will be allowed

Reservations in Favour of SC/ST

1. In the event of non-availability of suitable SC/ST candidates for reserved posts of Scientist B, these posts will be treated as dereserved and general candidates will be considered for these posts.

2. A lower standard of suitability in qualifications and experience consistent with the efficiency of administration will be applied.

3. A certificate issued by the competent authority in support of the claim as belonging to SC/ST community must be enclosed with the application.

General Conditions

1. Applications from the candidates working in Government departments public sector organisations and Government funded research agencies will be considered only if forwarded through proper channel and with a clear certificate that the applicant will be relieved within one month of receipt of the appointment order.

2. Mere fulfilling the minimum prescribed qualifications and experience will not vest any right in a candidate for being called for interview. The laboratory reserves the right to call for interview only those candidates who in its opinion are likely to be suitable and will not entertain any correspondence in respect of other applications.

3. These posts other than RA carry usual allowances as admissible under the Central Gevernment Rules as applicable to the CSIR. Higher initial pay may be given on merit.

4. The number of vacancies indicated above are vacancies existing at present. However, if any more vacancies are likely to arise before the time of actual selection, for which the qualifications, experience and job requirements are the same as notified in the advertisement, they may also be considered for filling up.

5. PRESCRIBED APPLICATION FORMS are obtained from the Administrative Officer, National Chemical Laboratory, Pune 411 008 by sending a self-addressed envelope of size 23 x 10 cm bearing 50 paise postage stamp. Applications complete in all respects together with a crossed Indian Postal Order for Rs. 8/- (candidates belonging to SC/ST communities are exempted from payment of application fee), payable to the Director, National Chemical Laboratory Pune-411 008, should reach the Administrative Officer, National Chemical Laboratory, Pune 411 008, not later than **3rd April, 1989.**

6. Travelling allowance as per rules will be paid to the candidates called for interview.

7. Canvassing in any form and/or bringing in any influence political or otherwise, will be treated as disqualification for the post.

8. No interim enquiries will be entertained.

ALL INDIA INSTITUTE OF SPEECH & HEARING

MANASAGANGOTHRI :
MYSORE-570 006

Advt. No. 1/89

Applications are invited for the following posts:

1. Professor of Speech Pathology—1 post*
2. Professor of Speech Sciences—1 post
3. Professor of Language Pathology—1 post
   Scale of Pay : Rs. 3700-125-4700-150-5000/-
4. Reader in Audiology—1 post
   Rs. 3000-100-3500-125-4500/-
5. Lecturer in Audiology—3 posts
   (1 Leave Vacancy)
6. Lecturer in Clinical Psychology—1 post (Reserved for ST)
7. Lecturer in Ent—1 post (Reserved for SC)
   Scale of Pay : Rs. 2200-75-2800-100-4000/- + NPA for Medical post

*Candidates who have applied in response to Advt. No. 6/88 for this post need not apply again.

Application form along with full details regarding educational qualification, experience, age, allowance, reservation, etc, may be obtained from the Institute on payment of Rs. 2/- each (Re. 1/- for SC/ST) either in cash or through Indian Postal Order by sending self-addressed and stamped (Rs. 1.40) envelope (9" x 4"). The last date for receipt of application is 31.3.1989.

DIRECTOR

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16-10

University News

MONDAY, MARCH 13, 1989

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Kamalini H. Bhansali, Vice-Chancellor, SNDT Women's University speaking at the ACU-SNDT International Worksh Management Development for Women Administrators. To her right are Dr. Rajammal Devadas, Vice-Chancellor Avinashilingam Institute for Home Science & Higher Education for Women, Coimbatore, Dr. Usha Thakkar and Dr. Lena D'Souza, Co-ordinators. Dr. Amy Zelmer, Capricornia Institution, Australia is at extreme right.

SRI AUROBINDO COLLEGE

(UNIVERSITY OF DELHI)

MALAVIYA NAGAR, NEW DELHI-110017

Applications (on prescribed forms obtainable from the College Office on request or by sending a self-addressed stamped envelope of 9" x 4") are invited for the posts of lecturers in the following subjects :

S. No.	Subject	No. of Posts	Nature of Posts
1.	Hindi	1	Permanent
2.	Political Science	2	One permanent and one temporary against leave vacancy till 16.1.1991
3.	Commerce	2	Permanent
4.	History	1	Permanent
5.	Economics	1	Temporary against leave vacancy till 29.9.1989

Qualifications

(a) A Doctorate's degree or research work of an equally high standard; and

(b) Good academic record with at least second class (C in the seven point scale) Master's degree in a relevant subject from an Indian University or an equivalent degree from a foreign University.

Having regard to the need for developing interdisciplinary programme, the degree in (a) and (b) above may be in a relevant subject.

Provided that if the selection committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed in (b) above.

Explanations :

1. For determining "good academic record" the following criteria shall be adopted :

(i) A candidate holding a Ph.D./M.Phil. degree should possess at least a second class Master's degree; or

(ii) A candidate not possessing Ph.D./M.Phil. degree but possessing second class Master's degree should have obtained first class in the Bachelor's degree.

(iii) A candidate without a Ph.D./M.Phil. degree should possess a high second class Master's degree and second class in the Bachelor's degree; or

2. Persons having secured marks more than the mid point of prescribed minimum marks for passing an examination in the first division of a University shall be deemed to have passed the examination in the second class.

The applications should reach the undersigned **within 15 days** from the date of publication. Persons already in employment should apply through proper channel

Note :

I. One of the lecturers in Commerce Department must have the specialization in Business Mathematics and be capable of teaching B.Com. (Hons.) classes;

II. Lecturers must be competent to teach in relevant subjects both in English and Hindi:

III. Nature and No. of posts may be altered at the discretion of the Selection Committee.

Javinder Singh
OFFG. PRINCIPAL

UNIVERSITY NEWS

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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor :
SUTINDER SINGH

Financial Health of Universities
A Diagnostic Study

M. M. Ansari*

I

Preamble

Universities and colleges are the main establishments of higher education, the major functions of which are to preserve, generate and disseminate knowledge as well as to increase the effectiveness of training in skills through the improvements in the techniques of application of knowledge in various human activities. The programmes of higher education have thus significant bearing on creation of income and wealth which enhance quality of life of people. The development of higher education, therefore, becomes crucial for creating conducive conditions for socio-economic advancement of the country, essentially because education is the major source of providing trained manpower of various kinds and levels of skills including technicians, craftsmen and engineers as well as managerial personnel—which are a prerequisite for efficient management of physical and financial resources that are employed for increasing the pace of development. The process of industrialization through which India is presently undergoing will continue to demand further advancements in educational levels and on-the-job training requirements of the people so as to cope with the growing needs of various sectors of development. The success of education sector in providing essential manpower is, however, contingent upon the availability of resources for undertaking new educational programmes as well as for maintaining and upkeeping of the supporting infrastructural facilities which have already been created during the successive Five Year Plans. If there are deficiencies in the mechanism of financing the system of higher education, resulting in distortions in the distribution of resources, the potentiality of higher education to contribute to national development would be seriously impaired. It is in this context that the examination of the entire gamut of financing education, training and research becomes an integral part of the overall development strategy. Hence, our concern for raising issues in university finances with a view to developing proper perspectives on resource allocation and its efficient management.

The fact is that the universities and colleges in India are largely financed by the Central and the State Governments (about three-fourths) and the remaining portion is financed from fees, endowments and philanthropic contributions. Educational expenditures constitute a major chunk of the States' budget, roughly in the range of 20 to 25 per cent; and a substantial part of it is provided by the Centre through the mechanism of resource allocation undertaken by the Planning Commission for Plan grants and the Finance Commission for non-Plan grants. In addition, the Central Ministries like Agriculture, Industry and Human Resource Development (HRD), etc., directly extend financial assistance to the universities and university level institutions in the country. The University Grants Commission (UGC) which is mainly responsible for maintenance of standards of higher education and coordination of university activities so as to enable them to cater to the specialized

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**Joint Director, Research Cell, Economics of Education, Association of Indian Universities, New Delhi.*

manpower needs of various sectors of the national economy, directly provides funds for the maintenance and development of the Central and Deemed to be Universities. The UGC also provides partial assistance towards plan programmes of the State universities and colleges. The State Governments have been endeavouring to promote the development of higher education largely from their own resources and partly from devolution of resources through different channels of the Central Government. Thus, the Central and the State Governments have entered into a meaningful partnership in providing financial sustenance to education and their collective role determines the pace of development in the field of education.

A major portion of expenditure on universities (about 80 per cent) comprises non-plan expenditure, which is fully borne by the States especially in respect of the institutions created by them. It has been observed that there have been frequent cuts to the extent of 5 per cent or so by both the Central and the State Governments in the non-Plan expenditure as a measure of economy in expenditure. Since education budget constitutes about one-fifths of the overall States' budget and a large part of it is on account of non-Plan expenditure, education sector obviously suffers a great deal. As a result, almost all the ongoing programmes get hampered; affecting thereby, the quality of education. In view of this, the question of resource allocation for higher education for maintenance expenditure needs to be thoroughly examined.

The plan of this paper is as follows : Section II underscores the imperative need for development of higher education especially from the point of view of raising its contribution to improvements in socio-economic levels of people as well as to enhance the share of India in the growth of income and wealth of the world. Section III analyses problems of university finances that impinge upon, among others, the quality of education. Section IV summarises recommendations for evolving a sound mechanism of financing higher education that should be consistent with the principles of public finance, of efficiency and equity in distribution of resources.

II

Imperatives for Higher Education Development

India is one of the ten highly industrialized countries in terms of volume of production and possesses sizeable technical and scientific manpower in the world. However, in terms of per capita industrial output and per capita gross domestic product as well as the availability of trained and skilled labour force per thousand of population, it ranks as one of the lowest among developing countries, let alone the developed ones. In fact, the challenge of combating poverty and liquidating illiteracy is greater now than was ever before, as the absolute number of the poor and the illiterate people has been steadily rising. As education and training are vital instruments of change, it would be pertinent to examine the factors that have a bearing on the development of education as its influence is considerable on all human activities.

The National Policy on Education (1986) has clearly stated that higher education "contributes to national development through dissemination of specialized knowledge and skills. It is, therefore, a crucial factor for survival". It is precisely for this reason that the policy document states that "development oriented objectives of Indian society can be realized only by making investments in education of an order commensurate with the nature and dimension of the task". Further, the nature and dimension of economic and socio-cultural factors, having significant implications for the quality of life of people, have always been complex. Therefore, the search for solutions for bringing about desirable improvements in economic and social environment has also been a continuing process of the planning system in which the role of education and human resource development is duly emphasised.

The development of human resources, the impact of which is intense and pervasive on all sectors of growth, is closely associated with the system of providing education and training in skills. The effectiveness of the latter is, however, primarily dependent on the availability of adequate finances to meet the requisite costs of the provision for the development of higher education and research. The system of higher education, being chiefly responsible for preservation, generation and dissemination of knowledge and skills of the highest order, exercises a determining influence on the socio-economic and cultural development of the country. A large financial contribution (i.e. about three-fourths of the total educational finance) by the government for the development of higher education is undoubtedly a strong expression of this belief as also that the diverse forms and programmes of higher education ought to be made available for all those who are capable of benefiting from new knowledge and technical know-how so that the manpower requirements of various sectors of the economy could be duly provided for to expedite the process of national development.

When contemplating the challenges that India confronts today and thinking in terms of imperatives of revitalizing the Indian society, the advantages of advanced research and technology become self-evident. As compared to other countries including those of the Third World, the number of scientific and technical manpower per thousand of population is among the lowest, about 4 for India. In other words, the proportion of labour force with post-secondary education in the total labour force is lower than that of several developing countries. This is inspite of the fact that the proportion of educated manpower (i.e. matriculates and above) in the total labour force has increased from 3 per cent in 1961 to 12 per cent in 1981, which is substantially lower as compared to several developing countries. What is indicated from the above is that the scarce financial and capital resources, which have been invested during different plan periods, have been manned largely by unskilled, untrained and other personnel having less than desired level of managerial and entreprenieurial capacity. Obviously this might have had impinged upon economic growth due to the adverse impact of the above factor on productivities of various factors of production. In essence, a capital starved country like India, has to rely on her vast human resources which have immense potential for increasing productivity and production provided that adequate education and training in skills is imparted to them, so as to provide them proper orientation and motivation to venture into various productive activities.

In such conditions as faced by India of today, the health and vitality of higher education and research is crucial to the part this country has to play not only in the comity of nations but also to tackle successfully the challenges that have confronted it for several decades. It also means that the development of higher education would determine the extent of success in improving the social and economic standard of people and facilitate the task of laying solid foundation for maintaining a high quality of life over a long period of time. In view of this, it is imperative that deficiencies in financing universities and colleges, which impinge upon the effectiveness of higher education and research, should be identified and rectified. This is the main concern of this paper.

III

Problems of University Finances

There are three major deficiencies which need to be highlighted. First, there is inadequacy of finances available to universities and colleges. Despite the substantial contributions which the Central and the State governments are making towards the financing of higher education and research, the finances of universities and colleges are inadequate as they have not increased commensurately with the rise in enrolment and the increased requirements for modernisation and diversification of tertiary education. Second, there are stresses and strains in Centre-State budgetary relations which have come to affect the financing of universities and colleges due mainly to disproportionate distribution of fiscal powers and responsibilities in respect of development projects. The existing arrangements under which the Centre and the States are financing universities and colleges have quite often given rise to diverse and dilatory practices and procedures between the two levels of governments so much so that the attention of the governments gets diverted from ensuring a sound financial base for the institutions of higher learning. Third, the priorities within higher education have been somewhat distorted. In our attempt to equalize educational opportunities, too little attention has been paid to the nurturing of excellence in higher education and promotion of research which are crucial for raising productivity in every sphere of human activity and increasing the tempo of development. While the attainment of the equal educational opportunity has been an elusive objective, as more than 80 per cent of the beneficiary groups are drawn from the top 30 per cent of the income group, the quality and relevance of higher education has also been deteriorating fast as is evident from the growing problems of graduate unemployment and mismatch between education and jobs. In view of the above three broad categories of problems of educational finances, this subject matter becomes an interesting area of economic study especially for the students of development economics and public finance who are necessarily concerned with the allocative efficiency and distributive justice of public funds.

The discussion in the following paragraphs will focus on the nature and extent of deficiencies in the system of providing funds for higher education. The important among them are as follows :

1. *Declining Expenditure Radio*

The proportion of GNP made available for higher education has increased from 0.43 per cent to 0.58 per cent as against an increase of 2.62 per cent to 4.12 per cent for the overall education sector for the period of 1970-71 to 1983-84. The relative increase in the latter was, thus, at a higher rate than the former. While the expenditure on higher education grew at the rate of 6.3 per cent per annum at 1970-71 prices, the corresponding increase in enrolment was recorded at 4.1 per cent per annum. There was thus marginal increase in expenditure in real terms. The inadequacy of this increase in the overall expenditure on university education can be gauged by the fact that a number of universities have to operate under deficit budgets. As a result, they are constrained either to postpone the initiation of innovative and productive educational programmes or to go slow on the schemes already undertaken by them. Rather, in cases of most departments of universities, new programmes are rarely launched. Such handicaps obviously impinge upon the modernisation of higher education system and, consequently, upon its contributions to development.

Comparisons between education and other sectors of development show that the Plan allocations for education have come down to 3.5% in the Seventh Plan as against 7.6% in the First Plan. Within the education sector, allocations for higher education have been steadily declining over the Plan periods. These evidences demonstrate that higher education has received a lower priority over the successive Plans.

2. *Retationship Between Expenditure and Income*

The relationship between expenditure on universities and State Domestic Product for a cross-section of the States reveals that increase in expenditure on higher education due to rise in income has been less than proportionate. In order to estimate income elasticity of expenditure for a cross-section of the States, three-year average data on expenditure on higher education was regressed on the corresponding state Domestic Product for the period 1980-81 through 1982-83. The elasticity coefficient emerged out to be 0.75. When the price effect was netted out from both the series using income deflators, the coefficient was found to be marginally lower; it was 0.72. In terms of both nominal and real costs, the above results demonstrate that the resources being allocated by the States for higher education have not been inreasing in proportion to the rise in State incomes. The results, therefore, indicate that there is built-in bias in the prevailing mechanism of allocation of resources for higher education and the priority attached to its development is much less than desirable.

3. *Declining Central Contribution*

An analysis of sources of income reveals that at least three-fourths of university expenditure is met by the Central and State Governments and the remaining portion is financed by fees (about 17 per cent), endowments, donations, etc. The role of the Centre in funding higher education is, however, declining which is evident from Table 1.

Table 1

Expenditure on University and other Higher Education (including Technical Education) by Education Department

Years	Centre	States/Uts	Total
1971-72 to	93.63	143.89	237.52
1973-74	(39.42)	(60.58)	(100.00)
1976-77 to	143.04	320.89	463.93
1978-79	(30.83)	(69.17)	(100.00)
1981-82 to	196.74	668.37	865.11
1983-84	(22.74)	(77.26)	100.00)

Note : 1. Figures within parentheses indicate percentages to total.

2. Figures are represented in the text by their respective mid-years.

Source : Calculated on the basis of data available in various issues of *Analysis of Budgeted Expenditure on Education in India*, Ministry of Human Resource Development, Govt. of India.

It is apparent that the contributions of the Centre and the States were roughly in the ratio of 23 : 77 respectively in 1982-83 as against the ratio of 39 : 61 in 1972-73 (Table 1). Thus, there has been considerable decline in the contribution of the Centre for the development of higher education. It is important to note that education was included in the Concurrent List of the Constitution in 1975 when a view to ensuring the sharing of the responsibility between the Centre and the States. The declining trend in Centre's contribution to the development of higher education contradicts the expectations aroused from the above provision that the Centre should play a leading role in expanding and diversifying higher education. Also, because the fiscal capacity of the

Centre is relatively more than that of the States as is borne out by several studies on the subject, it justifies a higher financial assistance by the former for strengthening institutions of higher learning. The lack of adequate contribution by the Central Government is likely to retard the balanced development of higher education and research as the priorities of the States and their fiscal capacities widely differ. This is duly confirmed by the pattern of allocation of resources by the States for education vis-a-vis other sectors of development.

4. *Finance Commission's Transfers*

The transfer of financial resources from the Centre to the State Governments has not kept pace with the increase in expenditure on education even though the responsibility of financing education largely falls under the purview of the States. It appears that the Finance Commissions' estimates of the budgetary requirements of the States are inconsistent with the actual requirements of the States. It has also been observed that even the States' forecasts do not adequately represent their actual requirements. Comparisons between estimated requirements and actual expenditure for the periods covered by the Sixth and Seventh Finance Commissions reveal under-estimation o the tune of 38 per cent by the former and 21 per cent by the latter. The corresponding under-estimation by the States is of the order of 35 and 36 per ent respectively. Table-2 brings out these divergences.

Table 2

Gaps between actual Expenditure on education ncurred by State governments and State governments' own forecasts and reassessed estimates of the Finance Commissions

	State Forecasts	Reassessed Estimate of Finance Commission	Actual Expenditure Incurred by States	Gap between (3) & (1)	Gap between (3)& (2)
	(1)	(2)	(3)	(4)	(5)
xth Finance ommission 974-75 to 78-79)*	5903	5736	7940	2037 (35)	2234 (38)
venth nance ommission 979-80 to 83-84)**	2664	11013	13354	690 (6)	2341 (21)

Note : Figures within parentheses indicate percentages.

Source : Date relating to State Forecasts and Reassessed Estimates of Finance Commissions were collected from the relevant *Report(s) of the Finance Commission(s)*. Data relating to actual expenditure by States were collected from the relevant issues of *Analysis of Budgeted Expenditure on Education in India*, Ministry of Human Resource Development, Government of India.

The intensity of such an incidence might be higher in the economically backward States which also happen to be educationally backward.

5. *Inter-State Disparities*

Inter-State disparities, as expressed in terms of coefficient of variation, have been widening in terms of both the availability of the percentage share of state Domestic Production for education as well as the per pupil expenditure on higher education. The obvious reason is the lack of a uniform and consistent approach across the States in financing the system of higher education as well as differences in the stages of their economic development. This also reveals, as noted above, inadequate Central intervention for rectifying educational disparities among the States through the mechanism of equitous distribution of funds from the Central pool of resources.

6. *Inadequacy of Tuition Fee*

Tuition fee as a proportion of the total revenue for universities and colleges has been declining. One of the main reasons for this is the inelastic nature of fee structure adopted by the Central and the State governments, under which the quantum of fees bears no relationship either with the escalating costs of higher education or with the increasing financial requirements for providing relevant and qualitatively better education.

Likewise, the cost of other facilities are hardly recovered from the beneficiary students. A number of institutions of higher learning attach significant priority to the provision of residential accommodation to the scholars so that they are able to devote adequate time to their studies. The room rent realised from the scholars is very nominal which sometimes does not even cover expenses on electricity, water, cleaning, etc. This adds to the quantum of university deficits.

7. *Per Student Cost*

A time series and cross-section analysis of per student expenditure on higher education reveals the following :

(a) Per student cost of higher education varies considerably across different types of institutions. For instance, the annual average cost (for three-year data resting on 1977-78) at 1970-71 prices shows that the average per student institutional cost was Rs. 3,230 for universities, Rs. 8,910 for Deemed Universities, Rs. 13,149 for Institutions of National Importance, Rs. 15,196 for Research Institutions, Rs. 452 for colleges of general education, Rs. 1884 for colleges of professional education, and Rs. 337 for colleges of other education. (See Table 3)

(b) The trend of change in per student cost of higher education over a period of 10 years demonstrates that whereas per student cost (in real terms) has been declining for universities, the same is, however, rising for other types of institutions. This is duly ascertained by the tabulated data referred to above. (See table 3)

(c) While a number of factors such as the nature of study programme, duration of courses and number of students, etc., are attributable to affecting per student cost of education, the source of funding is equally important in influencing the cost of education. For instance, of the entire enrolments in higher education about 80 to 85 per cent are catered to by the colleges which are largely financed by the States. Similarly, considerably large number of universities are also supported by the States. In both these cases, per student cost is much lower than other types of institutions like

Table 3

Per Student Direct Expenditure by Types of Institutions of Higher Education
(3-Year Moving Averages)

(In Rupees)

Types of Institutions Years	Universlties	Deemed Universities	Institutions of National Importance	Research Institutions	Colleges for General Education	Colleges for Professional Education	Colleges for Other Education
1969-70	3180 (3295)	5916 (6102)	9158 (9455)	9196 (9487)	394 (408)	1100 (1136)	162 (168)
1970-71	3140 (3124)	6668 (6926)	10480 (10385)	10398 (10297)	402 (399)	1216 (1209)	232 (238)
1971-72	3104 (2893)	6776 (6331)	12445 (11545)	11829 (11030)	413 (38S)	1250 (1168)	247 (231)
1972-73	3319 (2762)	7744 (6312)	14393 (11697)	14054 (11422)	437 (365)	1310 (1094)	255 (218)
1973-74	3588 (2589)	9776 (6787)	15628 (11089)	16815 (11808)	467 (337)	1379 (997)	214 (153)
1974-75	3859 (2532)	13026 (8403)	16876 (10877)	16871 (10961)	514 (337)	1452 (958)	224 (145)
1975-76	4327 (2685)	10188 (8447)	18640 (11569)	21001 (12933)	597 (370)	1758 (1088)	369 (227)
1976-77	4724 (2869)	15705 (9561)	20609 (12523)	21441 (12949)	687 (416)	2878 (1722)	444 (268)
1977-78*	5532 (3230)	15282 (8910)	22492 (13149)	25924 (15196)	773 (452)	3228 (1884)	576 (337)

Source : Computed on the basis of data contained in *Education in India*, Ministry of Human Resource Development, Government of India (various issues).

* Due to considerable time lag in publication of the document, the analysis could not be carried out for recent years.

Notes : **1. Figures within parentheses indicate values at 1970-71 prices.**
2. The figures at constant prices were worked out by using National Income Deflators.

Deemed to be Universities and Institutions of National Importance which are financed by the Central sources. The point being made here is that even though there are considerable similarities in some of the courses of study offered by different colleges/universities/institutions and there is theoretical parity of certificates/diplomas/degrees offered by them, the magnitude of per student expenditure on education varies significantly since the funding agencies are different. It appears that there is no uniform approach to equalize educational investments on comparable courses of study with a view to minimising distortions in quality of education as well as to ensuring the efficiency of the system.

(d) Comparisons of per student costs of education for a sample of the State universities indicate considerable variation (Table 4). For example, the lowest per student/institutional cost in 1981-82 for universities in the sample was observed to be Rs. 3,356 for a university of the State of Tamil Nadu, while the highest was Rs. 20,109 for a university of Maharashtra State, Inter-State and Intra-State costs of education differ considerably, and cause variations in standards of education. These evidence reinforce the need for evolving methods for equitable basis of funding universities. (An approach to the distribution of resources for higher education would be discussed later).

Table 4

Per Student Expenditure on Salary and Non-Salary items in State Universities (3-Year Averages)

(In Rupees)

ITEMS/YRS	ON SALARY ITEMS			ON NON-SALARY ITEMS			TOTAL		
Univ. Codes	Mid-year		Percentage increase of (2) over (1)	Mid-year		Percentage increase of (5) over (4)	Mid-year		Percentage increase of (8) over (7)
	1976-77	1981-82		1976-77	1981-82		1976-77	1981-82	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1.	748 (462)	1597 (663)	+ 113.5 + (43.5)	1407 (789)	1759 (677)	+ 25.0 −(14.2)	2155 (1251)	3356 (1340)	+ 55.7 + (7.1)
2.	4950 (3038)	6981 (3027)	+ 41.0 − (0.4)	8360 (4695)	10890 (4041)	+ 30.3 − (13.9)	13310 (7733)	17871 (7068)	+ 34.3 − (8.6)
3.	2240 (1384)	4280 (1852)	+ 91.1 + (30.8)	6195 (3459)	10097 (3732)	+ 63.0 + (7.9)	8435 (4843)	14377 (5584)	+ 70.4 + (15.3)
4.	4408 (2726)	3955 (1734)	− 10.3 − (36.4)	2840 (1591)	3093 (1141)	+ 8.9 − (28.3)	7248 (4317)	7048 (2875)	− 2.8 — (33.4)
5.	2258 (1396)	4370 (1888)	+ 93.5 + (35.2)	3179 (1790)	4608 (1708)	+ 45,0 − (4.6)	5437 (3186)	8978 (3596)	+ 65.1 + (12.9)
6.	4670 (2883)	7346 (3198)	+ 57.3 + (10.9)	5331 (3080)	5068 (1864)	− 4.9 − (39.5)	10001 (5963)	12414 (5062)	+ 24.1 − (15.1)
7.	3369 (2082)	5821 (2522)	+ 72.8 + (21.1)	4147 (2334)	6132 (2269)	+ 47.9 — (2.8)	7516 (4416)	11953 (4791)	+ 59.0 + (8.5)
8.	4377 (2708)	6019 (2791)	+ 37.5 + (2.0)	8689 (4878)	9476 (3601)	+ 9.1 − (26.2)	13066 (7586)	15495 (6362)	+ 18.6 − (16.1)
9.	4024 (2476)	4468 (1939)	+ 11.0 − (21.7)	3528 (1978)	3973 (1461)	+ 12.6 − (26.1)	7552 (4454)	8441 (3400)	+ 11.8 − (23.7)
10.	4961 (3067)	7390 (3271)	+ 49.0 + (6.7)	8800 (4935)	12719 (4687)	+ 44.5 − (5.0)	13761 (8002)	20109 (7958)	+ 46.1 − (0.5)
Average	3601 (2222)	5223 (2286)	+ 45.0 + (2.9)	5248 (2953)	6782 (2518)	+ 29.2 − (14.7)	8848 (5175)	12004 (4804)	+ 35.7 − (7.2)

Note : Figures within parentheses indicate values at 1970-71 prices.

Source : Calculated on the basis of data collected through AIU proforma on *Basic Statistics Relating to Infrastructure for Higher Education and University Finance.*

8. *Salary and Non-Salary Expenditure*

Of the direct expenditure in the universities, a large proportion i.e. about 60 per cent, is accounted for by the salaries of teaching and non-teaching staff and the remaining 40 per cent is spent on equipment and consumable items, library, sports services, general maintenance, etc. The trend in growth of expenditure shows that the proportion of expenditure on non-salary support services is declining (Table 5), meaning thereby inadequare financial provision for physical facilities.

Table 5

Triends in Share of Salary and Non-salary Expenditures in Indian Universities

Year	Expenditure on salaries & allowances	Expenditure on non-salary items	Total expenditure
1	2	3	4
1970-71	24.99 (47.22)	27.93 (52.78)	52.92 (100.00)
1974-75	45.79 (50.97)	44.04 (49.03)	89.83 (100.00)
1978-79*	93.88 (57.25)	70.10 (42.75)	163.98 (100.00)

Note : Figures within parentheses indicate percentages to total.

* As of now, 1978-79 is the latest year for which the above data are available.

Source : Computed on the basis of data contained in *Education in India* Ministry of Human Resource Development, Government of India (various issues).

The rising share of expenditure on salaries is attributable to the defined structure of scales of pay and indexation of salaries with the rise in prices. There is, however, no such provision in regard to expenditure on support services. It follows that teaching and research support services are deteriorating. Table 4 & 5 show the extent of decline in percentage share of expenditure on educational infrastructure facilities for various universities as well as at the all India level. This evidence partly explains the reason for degradation in quality of higher education.

9. *Deficient Allocation Mechanism*

The methods by which resources are allocated across the universities also need to be rationalised. Ths prevailing method of distribution of funds among different universities is not linked to requirements on account of teaching-load and inputs for research.

As a result, considerable disparities occur in the provision for infrastructural facilities for teaching and research among the universities. The universities, which are fully funded by the UGC appear to be relatively better off than those financed by the States.

The Central Government provides, through the UGC, assistance on matching basis to the universities. This approach has, however, not yielded desirable results because of the fact that the fiscal capacity of the Centre and the States differ widely and most of the States, especially the backward ones, find it difficult to finance higher education programmes in which the grants extended to them by the UGC could be availed of by providing the matching share, which is usually larger than UGC's contributions. Furthermore, the assistance from UGC is available only for a fixed plan period of 5 years. Thereafter, the State Governments have to take over the entire responsibility of financing these programmes under non-Plan expenditure. In quite a few cases the States may not be in a position to take over the financial responsibility after the cessation of UGC's assistance and, therefore, the State's share is not made available in which case neither UGC's assistance is utilized nor educational programme is undertaken. These factors obviously impede the efforts of the State universities and colleges to enhance the relevance and effectiveness of higher education.

The UGC relies on the assessment reports of the visiting Committees which are constituted once in five years or so, and accordingly funds are earmarked for each university under its purview. By and large, such Committees take their decisions on the basis of past trends and the assessment of the plan requirements in respect of each university. There is seemingly no uniform yardstick to determine the magnitude of plan and non-plan expenditure of the UGC financed universities, yet "their funding on the whole is more satisfactory than that of the state universities", whose financial requirements are provided in accordance with the grant-in-aid codes as evolved by each State. The grant-in-aid codes not only vary widely across the states but also are inelastic and imprecise. As a result, financial allocations for the

State Universities have not been commensurate with their genuine requirements.

Policy Implications

The inferences emerging from the foregoing discussion are as follows :

(a) Since education is included in the Concurrent List of the Constitution of India, the UGC the centre ought to pay due attention to the development of higher education so that the national requirements for highly trained, skilled and specialized manpower are met as the same is a pre-requisite for expediting the process of development. This calls for evolving a uniform and sound basis for allocating resources for all the universities in the country so as to strengthen the institutions of higher learning. After all, higher education is such a crucial area of development which cannot be left to the whims and caprices of the economically weaker States and other agencies of socio-economic development and change, which lack sound perspectives on economic, social and cultural transformation of the country. More importantly, the co-sponsorship or co-financing of plan projects by the UGC and the States has not been a very successful venture in the past even though in the federal set-up partnership is viewed as a sound approach in all spheres of development. This, therefore, suggests that, without affecting the basic quasi-federal set-up, the centre must play a dominant role in providing direction and setting the tone of development of higher education by making substantial investments, which should be given on 100 per cent basis rather than on a matching basis. Such financial arrangements should, however, be consistent with the academic, administrative and financial autonomy of the universities as well as the corresponding accountability to the society.

(b) Since Plan programmes are undertaken on the basis of their contemporary relevance as well as desirability for future, there should be every attempt to ensure that such programmes are not jeopardised for the reasons of non-availability of resources. As discussed earlier, by and large, plan projects of the state universities are financed by both the UGC and the States on matching basis and the latter find it difficult to provide for their shares. As a consequence, plan projects are either not undertaken or not fully implemented. This hampers the efforts to launch socially and economically relevant programmes in universities. Also, it leaves much to be desired on account of financial accountability of the programmes. The solution lies in identifying programmes of national importance in higher education, which may be eligible for 100% funding from the Central agencies like the UGC, ICAR, etc. The States should not object to such moves since financial liability even on non-plan account of such programmes of national importance would be the responsibility of these organisations alone. This is important more so because due to shortfalls in the availability of resources, a number of universities are compelled to keep some of the development activities in abeyance till the money is made available to them. They are also forced to keep certain staff positions vacant much to the detriment of the quality of higher education. Obviously, there is imperative need to avoid such practices by allocating adequate resources through the Central organisations which have been specifically entrusted with the responsibility of financing programmes of development of higher education. An approach to rectify the deficiencies in the mechanism of allocation of resources has been discussed in the following section of this paper.

IV

Mechanism of Resource Allocation : A Suggested Approach

Due to general paucity of funds and huge financial requirements of priority areas like elementary and vocational education, the question of higher allocation of resources for university sector cannot be dealt with in isolation from the nature and extent of contribution of higher education to national development. In essence, this requires an objective assessment of the factors that have significant bearing on the quality and relevance of higher education and research for social and economic progress. It follows that development of performance indicators for assessing the produtivity of university output is a *sine qua non* from the points of view of justifying the need for higher levels of funding and ensuring its accountability to the society. This calls for a thorough review of approaches to finance university education so as to identify the factors which help and/or hamper the development of higher education and research.

1. Making Realistic Cost Estimations

There are different types of university level institutions, like Central universities, Deemed to be universities, Institutions of national importance, State universities, etc. These are financed as discussed in Section I by different organisations set-up by the Central and the State Governments. Because of different treatment given to them by various funding agencies, namely, different departments of education of the Central and State governments, UGC, ICAR, etc., considerable disparities in the availability of infrastructural facilities are caused even in respect of comparable programmes of students. This impinges upon the efforts to raise and maintain a uniformly high standard of education across the universities. In view of the theoretical parity in the diplomas/degrees awarded by various universities, there is urgent need to adopt a unified approach at the Central and the State levels to work out financial requirements of similar courses of studies across the universities on equitable grounds.

In view of the above, a sound approach to determine allocation of resources for universities would be to use scientific norms for the purposes of both preparation of budget estimates as well as for controlling and checking of wasteful expenditure. Separate norms pertaining to all types of expenditure such as (a) Wages and salaries of academic and non-academic staff; (b) Books and stationeries; (c) Administration and travel; (d) Equipment and furniture; (e) Repair of buildings and equipment; (f) Sports and culture; (g) Scholarships; and (h) Capital expenditure, etc., may be worked out for planning the development of higher education. In this context, it is important to lay nown two different kinds of norms. Firstly, physical or material norms, which may be expressed in physical units; and secondly, financial and budgetary norms expressed in monetary terms. Physical norms would provide a basis for ensuring standardization between different institutions and would thus ensure a uniform quality and satisfaction of requirements. As the physical norms represent standards of relatively constant value and are determined where possible on the basis of scientifically determined standards, they would not vary between regions and institutions. On the other hand, financial norms which represent the translation of physical norms into monetary terms, differ from region to region and reflect differences in prices, tariffs, etc.

On the basis of appropriate judgement, norms could be expressed as individual norms of expenditure or combined norms which group together a number of individual norms pertaining to different kinds of expenditures. For some purposes, a number of combined norms could be grouped together to show, for example, the total cost of maintaining a class room in an educational institution. Such an approach, would be most appropriate for planning and management of resources with a view to ensuring quantitative and qualitative development of higher education.

To begin with an easy way of planning resources is that, the entire institutional costs (coursewise) should be worked out and accordingly the national average cost should be maintained in all the institutions of higher learning while taking into account student-load and research programme. Under this approach, the costs can be estimated by applying the following norms and formula. The formula mentioned below should, however, be taken as an aid to the decision making processes, rather than as a substitute for the same.

(i) *Teaching Cost*

Teaching cost can be estimated by the following relationship :

$$C=E.\ \frac{S}{r}$$

Where, C=Cost
E=Enrolment Level
S=Average Teacher's Salary
r=Pupil-teacher Ratio

In order to work out the salary component of the academic staff, it is, however, important to have some idea, on normative grounds, of the proportion of teaching cost to the total educational expenditure and the ratio of teacher to student. Keeping in view the nature of courses taught and the need for providing supporting facilities, the ratios of teaching cost to the total cost and teacher to student could be assumed in close approximation of 60 : 40 and 1 : 20 or so respectively. These ratios, which are important for calculating teaching cost should be hypothesised by taking into account (i) the existing ratios as worked out on the basis of actual data for different types of courses and institutions, and (ii) the need for improvement in quality of teaching and research; and such need should be assessed on the basis of sound judgement. It would thus be possible to estimate the teaching cost which generally constitutes a major chunk of educational expenditure.

It is worthwhile to point out that empirical analyses undertaken by the author reveal the following : Of the total expenditure on higher education about 60 per cent is accounted for by the salaries and allowances of the teaching and non-teaching staff and the remaining 40 per cent is devoted to teaching and research support services. Further, the trend in change over time demonstrates that whereas the proportion of expenditure on infrastructural facilities is steadily declining, the share of salary component is rising which is attributable to indexation of salaries with the rise in prices. A decomposition analysis further reveal that of the total expenditure on salaries almost 50 per cent is due to non-teaching staff yet the teacher-student ratio is less than 20 which indicates considerable scope for increasing the quantity and raising the quality of education. Because, what has emerged from the above is that a major proportion of the expenditure on higher education is devoted to either non-academic purposes or such heads of expenditure which do not have direct bearing on quantitative and qualitative development of education, In view of this, the application of the approach discussed above would assure reasonable amount of expenditure on teaching and research purposes which is ought to be assigned a heavy weight in the scheme of budgeting for higher education.

(ii) *Cost of Non-teaching Staff*

The expenditure on account of salaries of non-teaching staff is the product of average salary per administrative staff member and their total number. The number of administrative staff should generally be derived as a ratio of the total academic staff either on the basis of past trends or sound judgement of needs of an institution. In this context also, we must refer to the calculated ratio of the teaching to the non-teaching staff which comes out to be 1 : 3 for a sample of universities in India. One would argue that this ratio should be in reverse order, that is at the most for three to five academic staff there should be one secretarial staff since the main activities in the university sector is largely teaching and research. This, therefore, provides justification for curtailing the expenditure on account of non-teaching personnel in universities which has acquired undue proportion in the university budgets. The amount thus released could be ploughed back for investment on relevant programmes or quality improvement programmes. This objective could, however, be achieved by applying the approach suggested above.

(iii) *Investment on Educational Infrastructure*

The expenditure on equipment, furniture, consumable items, etc., is estimated roughly in the range of 5 to 7 per cent of the total university expenditure. The time-series analysis of data on expenditure on equipment, etc., for the country as a whole reveals a declining trend in expenditure on such infrastructure. Moreover, cross-section analysis of data for a sample of universities shows wide variation in expenditure on equipment, etc. The evidences, therefore, suggest that keeping in view the need to upgrade the teaching and research infrastructure, it would be desirable to earmark at least 10 per cent of the total allocation to universities for equipment, etc. The declining trend in proportion of expenditure on infrastructure ought to be reversed for arresting deterioration in standard of university education.

(iv) *Maintenance of Library*

The cost of books and journals have been rising for various reasons, while the proportion of expenditure on maintenance of libraries has been declining. As against the observed share of 3 to 5 per cent on library maintenance, this proportion ought to be raised to 7 per cent of the total university expenditure so as to enable the university libraries to acquire new reading materials and related infrastructure for improving library services.

(v) *Building Repairs*

The maintenance and repair aspects of university buildings have rarely been paid due attention either by the universities or the agencies which finance them. The general paucity of funds is said to be the sole reason for deterioration in physical standards of classrooms and laboratories. This is eroding the base of capital formation in the country as well as affecting the healthy environment for teaching and research. There is, therefore, an urgent need to check the further degradation of university buildings. In this respect, it may be pointed out that some of the State governments follow the capital cost approach for providing the building maintenance grants, whereas some others follow the norms based on plinth area as recommended by the Central Public Works Departments (CPWD). As most of the university buildings built by various trusts are very old and, at the time of their construction, the nominal cost was much lower than what would be now, the eligibility for maintenance grants is, accordingly, very low. The grants available on the basis of capital costs is invariably found to be inadequate for carrying out repair works since the costs of construction materials have been rising. There is, therefore, urgent need to adhere to the plinth area approach of providing maintenance grants and apply the CPWD norms uniformly among all the State universities. This view is consistent with the recommendations of earlier Finance Commissions. The implementation of this approach alone can maintain the capital values of past investments.

(vi) *Tuition and Hostel Fees*

The costs of higher education have been rising. But at the same time, the personal benefits from education have also increased. This is duly reflected in high demand for education and also the differences in wage structure of labour force with varying levels of education. The rates of tuition fee for various courses are, however, stagnant as they have not been revised for several years. This has rendered the fee policy as a regressive form of taxation, since more than 80 per cent of the beneficiaries of higher education are drawn from the top 30 per cent of income groups. This calls for revising the tuition fee and linking it with the costs of education and incomes of parents so that the beneficiary groups are made to pay according to their ability to pay. Such an approach would surely put the university finances on a sound footing while pursuing the accepted principles of benefit and equity approach to finance social services. It is, therefore, recommended that tuition fee, especially in professional courses, should be revised. There would be no resentment from parents and students because employability of graduates having professional degrees is very high. Also, because higher education has considerable consumption and investment value for all types of courses. There is, therefore, sound justification for raising tuition fees to a reasonable extent.

A number of universities have been suffering from perpetual deficits on account of the maintenance of hostel facilities. In view of the fact that a majority of students who benefit from such facilities as well as higher education belong to economically better off sections of the society, there is a strong case for upward revision of hostel fee and other related facilities. Hostels should, therefore, be managed on a no-profit-no-loss basis, so that no deficit could occur in the non-plan account of hostel management. Likewise, other internal sources of income like examination fee, library fee, development charges, etc., ought to be tapped adequately.

(vii) *Raising Resources from Industry*

The measures for raising resources from external as sources such industries and other commercial concerns will reduce the present burden on the Central and the State governments. With their own efforts, the universities should be able to augment much needed finances for supporting their educational programmes. Moreover, the institutions of higher learning would, at the same time, show a higher degree of responsibility in catering to social and economic needs of people, as their success in this sphere will influence their efforts in mobilising funds from industries and philanthropists. In view of this, the universities should suitably tap funds from industries and business houses by way of (a) introducing such courses of studies and training programmes that would be relevant to needs of industries for raising productivity; and (b) undertaking consultancy research projects, the findings of which might help in re-orienting industrial activities such that would improve their earning prospects in foreseeable future.

(viii) *Rationalising Grant-in-Aid Procedures*

The allocation of resources to the State universities and colleges are largely governed by the grant-in-aid codes adopted by most of the States. These codes/formulae are quite inelastic to the changes in enrolments, modernisation of teaching methods and support services and rise in prices. The formulae, therefore, hardly meet the recurring deficits, let alone providing adequate cushion in the budgetary position of the State universities. Further, many of the States provide enhanced grants of 3 to 5 per cent in the university expenditure, which obviously is found to be inadequate as the pressure of enrolment and inflationary conditions erode the real value of investment. The norm based approach of funding as discussed above would, however, minimise this problem especially because the grants-in-aid code are unscientific and unreasonable in the context of contemporary needs of the universities.

It has also been estimated that income elasticity of expenditure on higher education has emerged out to be less than unity (0.75), meaning thereby less than proportionate increase in expenditure due to growth in income of one per cent. The revision of prevailing mechanism of distribution of funds, i.e. grant-in-aid codes is, therefore, a matter of considerable urgency and importance. The States should enhance the grants to the universities and colleges to the tune of proportionate increase in income; in which case, on one per cent increase in State income, the corresponding increase in expenditure on higher education would also be at least one per cent as against 0.75 per cent so far.

(ix) *Enlarging the Area of 100 per cent Assistance from the UGC*

In respect of the State universities, the UGC has been providing partial assistance on account of Plan grants on matching basis. In practice very few universities have been able to avail of this facility owing largely to poor response from the States, especially economically backward ones, to provide the matching portion. This is a major factor which has affected the efforts of the universities to embark upon socially and economically relevant programmes. It seems desirable that, for the programmes of crucial importance from the point of view of national development, UGC should provide financial support to the State universities on 100 per cent basis as it does for Central and Deemed to be Universities. The programmes of local relevance should be financed fully by the State governments.

(x) *Special Assistance for Educationally Backward States*

Special assistance to the educationally backward States, as compared to the all India average, should be provided by the UGC so as to enable them to improve the facilities for university education. Without direct assistance to such States, they would not be able to come up to the all India level.

Also the National Policy on Education 1986 has emphasised the need for upliftment of the educationally backward communities. The policy states that in the nterests of equality and social justice 'suitable incentives will be provided to all educationally backward ections of society'. In pursuance of this objective it s desirable that additional grants should be provided o universities and colleges which enroll students from uch communities, including the minorities under uch category. The approach and pattern of funding niversities should be such as to ensure a balanced ducational development across various sections of ociety as well as regions.

2. Direct Funding—An Alternative Approach

It is important to note that in the foregoing paragraphs the mechanism of resource allocation for higher education has been discussed within the framework of the existing methods and procedures as adopted by various funding agencies. From the view point of enhancing accountability of the system and improving cost efficiency as well as cost effectiveness of investments on higher education, it would be desirable to consider an alternative approach of financing higher education, which we may discuss here briefly. At the outset, a brief background may be provided with a view to justifying the relevance and utility of the suggested approach in the contemporary educational scene.

The prevailing system of financing universities by the Centre and the State governments allows for the simultaneous existence of the best or worst performing university departments, as judged from the quality of teaching and research in these departments. Though there are differences in the levels of grants received by them in terms of per student costs, they continue to co-exist and make increasing claims on government funds and that also without improving the quality of education. This is because there is no effective measure either to improve the quality of teaching by using the financial mechanism or to let the inefficient departments be routed out through the process of intense competition from the best performing departments. The main reason for this is that the Centre and the State governments provide funds to the universities on the basis of past trends, rather than the realistic requirement for planned programmes or performance in teaching or efficient utilization of funds.

In order to increase the returns from investments on higher education, it is desirable to increase competitiveness among universities. To this end in view, the allocation of resources should be linked with the performance of university departments as judged from their (a) quality of teaching and research; (b) volume of output of graduates i.e. teaching and research load; and (c) relevance of educational and research programmes to the contemporary needs of the society and economy. This objective can however be realized by direct financing of planned number of students for various courses of studies, as against the practice of financing education through universities/institutions. The method by which various categories and levels of students should be fully or partly financed by parents, government agencies, etc. require separate discussion. We therefore confine ourselves to discussing the broad approach only. The advantages of this approach are : (i) students would join those departments which they expect would give the best education and training to them, (ii) students would compete for the limited government funds, in which case the students with proven capacity to learn would have the chance of receiving government support, and (iii) since the students would be responsible to pay for their education fully or partly, they and their parents would become more vocal about the quality and relevance of education offered by the universities. Moreover, another advantage of this approach is that it would be possible to make obligatory, if required, for the beneficiary groups of students to serve for certain number of years, after completing the course work, on such priority areas as extension programmes pertaining to various socio-economic development. This would moreover effectively check the phenomenon of brain drain and thus minimise the wastage of scarce resources invested on students pursuing professional degrees. In the context of rural development also, it could be possible to ensure that the rural areas do not suffer for want of adequate educated and trained manpower since the migration of educated persons towards cities could be duly checked in the interests of balanced development of the country.

It is worthwhile to mention that the UGC has already been following somewhat similar approach of direct financing of students for research degrees in various disciplines. Many teaching departments have come to realise the low quality of teaching with them as their students cannot compete and qualify for research fellowships. Under the existing system of financing higher education through institutions, there is hardly any incentive or disincentive for the poor performance in teaching and research as the level of funding is hardly affected. As against this, financing of education through students would ensure (a) a proper degree of competition across various teaching and research departments so as to attract adequate number of students in order to justify their existence, (ii) enhance accountability of educational system to the society which is very much in demand in recent times, and (iii) a reasonably high degree of responsibilities on the part of students, parents, teachers, institutions and funding agencies for promoting the participatory role in strengthening the learning process for human resource development. The essence of financing higher education through students arises also from the fact that of the total enrolment in higher education about 60 per cent pass out and those who do so less than 25 per cent of them score above 50 per cent marks which in itself speak for quality of education. Obviously, the existing method of funding through institutions yields less than optimum results which justifies the need for alternative policy approach. The ultimate objective should however be to vitalize the university system so as to enhance its contributions to national development.

To sum up, it may be reiterated that the system of higher education cannot be improved unless financial inputs are increased in direct proportion to their requirements which could be worked out on the basis of scientific norms. The assessed requirements should be provided so that the quality of teaching and research is constantly improved as financial inadequacies have the potentiality to play havoc with the university system—an essential input contributing to national development through generation and dissemination of specialized knowledge and skills. The National Policy on Education 1986 has rightly noted that higher education is a 'crucial factor for survival'. Hence, the need for vitalizing and strengthening the system of higher education in India. □

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K.C. Nair
PRINCIPAL

ACU-SNDT Management Development Workshop

The second international workshop for women academic administrators from commonwealth countries was recently held at the SNDT Women's University, Churchgate Campus. It was a two weeks' residential workshop sponsored by the Association of Commonwealth Universities, London and the Canadian International Development Agency and hosted by the SNDT Women's University. Professor Kamalini Bhansali, Vice-Chancellor was the Project Director. The workshop was attended by 34 participants and participant observers from Sri Lanka, Malaysia, Bangladesh, Ghana, Swaziland, Jamaica and Trinidad.

The main purpose of the workshop was the professional as well as personal development of senior academic and administrative staff in ACU-member universities. Specifically it sought to :

(1) enable participants to appreciate and develop their own skills in some modern management techniques;
(2) further their understanding of the internal and external environment of their institution, and to help the organisation to respond effectively to changes in environment;
(3) prepare participants to be facilitators of change for the effective administration of higher education in their own institution;
(4) develop participants' skill in working together as a team to help others become more effective Administrators/Academic Managers: and
(5) help participants develop networks (within and between Universities) which will be mutually supportive in the development of effective administration of Universities.

The Workshop comprised four main units :

Unit I

Situational Diagnosis
Personal & Professional in Cultural Context :

To enable participants to appreciate and develop their own skills in some modern management techniques.

Unit II

Environment, characteristics of Higher Education, its goals and purpose :

To enhance their understanding of internal and external environment of their institutions to respond effectively to the changes in the environment.

Unit III

Facilitation of Change :

To prepare the participant to be facilitators of change for effective administration of Higher Education in their institutions.

Unit IV

Creation of Support Networks :

To develop participants' skill in working together and to help others become more effective administrators and Academic Managers.

The programme combined theory input as well as experiential learning. Lectures, structured and unstructured group discussions, skill practices such as case studies, problem solving, role playing and stimulation exercises were used.

Dr. Rajammal P. Devadas, Vice-Chancellor, Sri Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, in her Valedictory Address referred to a number of areas in university administration which need to be looked at critically as Management plays a very crucial role in the maintenance of standards in higher education. Poor management leads to corrosion of standards and eats up the system like gangrene, though its impact may be felt only after a considerable lapse of time. In this connection she felt that the workshop conducted by the SNDT Women's University was timely and met a felt need.

Dr. Lena D'Souza and Ms. Jenny Mundy, the two resource persons described an overview of the workshop.

The vote of thanks was given by Mrs. Carmen E. Redhead, Senior Assistant Registrar, University of the West Indies, one of the participants of the workshop. She said that the workshop provided opportunities for sharing knowledge, skills, attitudes and experiences as academic administrators. The workshop has also given time for reflection on their roles and ways and means of making them more effective. In the evaluation at the end-of-the-workshop, the participants unanimously agreed that the specific objectives of developing managerial skills for more efficient and effective administration are successfully achieved. They appreciated the experiential methodology and the group activities. This programme has thus widened the scope of building international linkages in respect of Women Academic Administrators. □

Modern Trends in Environmental Biology

A three-day National Symposium on "Modern Trends in Environmental Biology" and National Seminar on "Environment and Animal Life" was held at the Ramakrishna Mission Vivekananda Centenary College at Rahara during February 6-8, 1989.

The Symposium, the Seminar and the Exhibition by the students were inaugurated by Dr. Ambarish Mukhopadhyay, Hon'ble Minister-in-Charge of the Department of Environment and Forests, West Bengal. Dr. Mukhopadhyay spoke on the relevance of forests as a very important component of our environment from the standpoints of ecological balance, economic value and human resource development. The keynote address on "Management Strategies and Conservation of Nature" was delivered by Dr. Dhrubajyoti Ghosh, Director, Institute of Wetland Management & Ecological Design, Calcutta.

The Symposium and the Seminar emphasized the need for scientific knowledge coupled with sound tactics, strategies and policies, the need for eradication of poverty and dissemination of scientific knowhow through micro as well as macro education. It was felt that the inter-relation between various disciplines necessitated a concerned approach from many sides to handle environmental problems. The country contained a rich collection of flora and fauna worthy of deep study. A number of environmental problems were discussed at length supported by experimental data. The hazards of indiscriminate exploitation of nature were brought out vividly.

Eminent scientists like Prof. K.K. Mehrotra of the Indian Agricultural Research Institute, Professors J.J. Ghosh, N.C. Datta, Ashima Chatterjee and R.K. Poddar of the Calcutta University, Prof. B.P. Sen of the Kalyani University, Prof. S.C. Sinha of the Manipur University, Prof. D. Chakraborty of the Jadavpur University, Prof. A.B. Das of the Visva-Bharati University, Prof. A.K. Medda of Bose Institute, Dr. A.K. Ghosh, Deputy Director of the Zoological Survey of India, and Dr. A.K. Hati of the School of Tropical Medicine participated in the various sessions. In all, over 70 papers were presented at the symposium which was attended by 118 scholars representing the States of Bihar, Manipur, Meghalaya, Punjab, Rajasthan, Tamil Nadu, West Bengal and the Union Territory.

At the Valedictory Function held on the 8th February, Dr. Bhaskar Ray Choudhury, Vice-Chancellor of the University of Calcutta said that there was a way to handle environmental problems if there was a will to do so. The Seminars and Symposia offered opportunities for exchange of ideas and should be encouraged. Swami Lokeswarananda, Secretary of the Ramakrishna Mission Institute of Culture, said that books never contained all the knowledge and that it was through the exchange of ideas with research workers that information could be easily circulated. From a religious standpoint life was one and human life, animal life and plant life were all interdependent. As such no human being could hurt the plant life or animal life without the risk of hurting himself or herself.

The programme was financially supported by the University Grants Commission, the Department of Science and Technology, the Council for Scientific and Industrial Research, Department of Environment and Forests (W.B.), the University of Calcutta and others.

Admission Rule Struck Down

The Supreme Court is reported to have struck down the rule for admission to the evening classes of the three-year LLB degree course of Panjab University which limited the admission to regular employees of Government or Semi-Government institutions, etc. to the exclusion of all others. The Court held that the rule violated Article 14 of the Constitution and as such was invalid. It directed that the two appellants should be admitted to the second semester of the course and clarified that the holding of the rule as invalid would not disturb the admissions already made for the 1988-89 session.

The court held that the exclusion of private employees on the ground that there might not be an assured tenure of employment likely to continue for three years not only did not stand scrutiny but was also unfair and unjust.

All that the university could insist was that one should be a bonafide employee and if there was any material to show that a candidate for admission to the evening classes was a bonafide employee, the university could not further discriminate against him by insisting that he should have an assured tenure of three years in service.

Revised Pay Scales for Agricultural Scientists

The Union Agriculture Ministry recently announced new pay scales and promotion structure for the

CAR scientists. New pay scales will take effect from 1st January, 1986. The revision, almost on the pattern of scales announced by UGC, will benefit about 4500 agricultural scientists.

According to the new scales, S-1 scientists in the pre-revised scale of Rs. 700-1300 will be placed in the Rs 2200-4000 scale. S-2 scientists in the pre-revised scale of Rs. 1100-1600 having eight years of service or less in Agricultural Research Service (ARS) will be given Rs. 3000-5000. Those having more than eight years of service in ARS will be placed in the Rs. 3700-5700 scale.

S-3 scientists in the pre-revised scale of Rs. 1500-2000 and having 16 years of service or less in ARS will be placed in the Rs. 3700-5700 scale. Scientists more than 16 years of service in ARS will be placed in the Rs. 4500-7300 scale. S-4 scientists in the pre-revised scale of Rs. 1800-2250 and S-5 scientists in the scale of Rs. 2000-2500 will be placed in the revised scale of Rs. 4500-7300.

JNTU Perspective Plan

The Jawaharlal Nehru Technological University is reported to have drawn up a "10-year perspective plan" to give a fresh drive to its objective of achieving excellence in academics and closer links with industry. According to Dr. D. Swaminathan, Vice-Chancellor of the University, setting up of 10 schools of excellence, an industrial consultancy cell, an academic audit authority to monitor the quality of academic work—all in a new 10-storey complex to be constructed shortly in its city campus—are on the plan's agenda.

The perspective plan is to be implemented in three stages—the impact, metamorphosis and directional—up to 1998. As an immediate step in this direction, the University will start an Institute of Pedagogy during 1989. This will be an in-house centre which will critically examine existing methods of teaching and research in the University, identify areas of weakness and suggest improvement measures.

Some of the schools of excellence planned by the University, which came into existence in 1972, are in the areas of bio-technology, fine arts, distance education, environment and water resources, energy studies and computer sciences.

To augment the financial resources to be provided by the University Grants Commission and by the State Government for the plan implementation, the JNTU will set up an exclusive industry consultancy cell. The cell would provide liaison and support in addition to taking up projects for clients.

Computer Courses in Hindi

Postgraduate and Advance Research Institute, Dakshin Bharat Hindi Prachar Sabha has started a Master in Computer Applications Course with Hindi as medium of instruction. Some new subjects like Natural Language Processing, Computer Aided Instruction and Computer Aided Language Learning in Indian Languages have been introduced. 10 students have been selected for this Course in Hyderabad and 7 in Madras.

It will be recalled that Postgraduate and Advance Research Institute, Dakshin Bharat Hindi Prachar Sabha, was the first organisation to start Diploma in Computer Applications through Hindi as medium of instruction at Hyderabad and Madras Centres. Various short term Computer Certificate Courses are also conducted in Hindi medium.

Dakshin Bharat Hindi Prachar Sabha has undertaken a project sponsored by Department of Electronics for Development of Software for Computer Aided Teaching in Indian Languages. This Project has been taken up jointly by Sabha and Indian Institute of Technology, Madras.

Curriculum Development in Social Work

A Curriculum Development Centre for Social Work was set-up at the Tata Institute of Social Sciences in 1986 under the auspices of the University Grants Comission (UGC). The Centre was required to carry out two major tasks : one, a national level review of undergraduate and postgraduate social work education programmes, and two, suggesting curriculum reforms to make education 'learner centered' and based on country's developmental needs and programmes'.

A detailed project was planned and carried out to cover the tasks at the Centre. This involved three large group meetings and seven small group meetings of social work educators as resource persons. The deliberations of educators from the various social work institutions and departments included discussions on the current social reality, and problems related to social work education, and learners. Programmes were drawn up giving details of content for each course to be included in curriculum design. A time frame for units of content for the courses, and reference for the same were worked out. Through library research relevant curriculum design and theory were elaborated. A report giving all these details was prepared which also contained suggestions for approaches to teacher development plan and a list of priority areas for teacher training courses. The report has since been submitted to the University Grants Commission.

The Centre will also take up UGC's another plan for teacher development programme. These are scheduled for the months of June, August, October, January and April of the academic year 1989-90.

AIIMS Surgeons Excel

Doctors at the All India Institute of Medical Sciences, New Delhi, have used the appendix to create an artificial pathway between the liver and the intestine to correct a rare post-natal defect in babies. The defect in which the bile duct, the natural and connecting these two organs, gets blocked causes liver failure and can be life-threatening to infants.

According to Dr. D.K. Gupta, a paediatric surgeon of AIIMS, the technique of using the appendix to make the liver-intestine connection has successfully worked on nine babies between two and seven months in age. The new procedure called hepaticoporto appendico jejunostomy (HAJ) involves separating the appendix from the intestine and "stretching" it a bit so that the two ends of the organ can be sutured to the liver and the intestine. The appendix is "mobilized" from its original position but blood supply to the organ is maintained.

The operation is aimed at correcting a condition called biliary atresia in which the bile duct gets blocked. The defect which is rare, with an incidence of about one in 50,000 is believed to be triggered off by a viral infection.

The bile duct is essential for bile to drain out of the lever into the intenstine and a blocked duct would increase the back pressure in the liver and cause hepatic failure.

State of the World Series

The University Grants Commission (UGC) has entered into a co-production agreement with WGBH Educational Foundation, Boston (USA) for a T.V. series entitled 'State of the World'. This ten-part television series will explore the human dimension of international environmental issues. It will reveal an emerging understanding of the complex relationship between the mankind and the World's natural resources and processes. It will combine local and global perspectives on ecological issues.

Indian participation on the co-production will provide a worthwhile opportunity to acquire a system expertise for producing a multi-producers series with educational content by working with one of the best educational organizations in the world.

A 16-member steering committee under the Chairmanship of Prof. Yash Pal, Chairman, UGC has been constituted to oversee the co-production programme from the Indian side. The Gujarat University, Ahmedabad and its Educational Media Research Centre (EMRC) have been entrusted with the responsibility to implement the programme on behalf the UGC. The production of the series has commenced with shootings at various places and locations in India.

Malayalam Language Centre and 'Bhasha-Setu'

Dr. P.R. Pisharoti, Professor Emeritus, Physical Research Laboratory, Ahmedabad recently inaugurated the Malayalam Language Centre in the Gujarat Vidyapith. Dr. Pisharoti observed that the important role played by Sardar Vallabhbhai Patel in integration of India can be nourished by emotional integration which is real National Integration. This is a matter of Culture - Personal and Social. Such a Culture is conveyed in the language and literature of the different regions. The study of languages of other States at the Centres of learning in each State would go a long way in neutralising the retarding influence engendered by the linguistic reorganisation of the States of India.

Prof. Ramlal Parikh, Vice-Chancellor of Gujarat Vidyapith, who presided over the function also inaugurated 'Bhasha Setu'—a Literary and Cultural Forum. He appealed to creative writers and scholars of all languages to strengthen the Setu as a platform to focus the attention of our people on the underlying unity in diversity and Culture. He thanked the local Kerala Samaj for its keen interest in this language teaching programme. He pleaded for a much greater place for all Indian languages in Education & Administration at the Centre as well as States.

Bio-tech Lab

A bio-technology laboratory to improve the quality of silkworms through the newly developing field of genetic engineering is likely to go on steam in Bangalore within the next two years. The first of its kind in the sericulture industry, the laboratory, to be set up by the Central Silk Board (CSB) will concentrate on improving the biovoltine silkworm cocon race to produce "A" grade silk for export.

Science Centre at Birla Planetarium

A Rs. 7-crore "hands-on" interactive science centre is likely to be set up at the B.M. Birla Planetarium in Hyderabad. The centre, extending over an area of about 22,000 sq. ft. would comprise sections on perception mechanics optical illusions, mathematical puzzles, optics, electricity and magnetism, vibrations and sound energy, computers, robots and life sciences.

Visitors and students will be able to experience the fun and power of science through the interactive exhibits at the centre expected to be opened early next year.

Allocation for Research

The Union Government is considering doubling of the investment on research and development in science and technology, which was now one per cent of the gross national product. This was revealed by the Union Minister of State for Science and Technology, Mr. K.R. Narayanan while laying the foundation stones for a library and a hostel complex at the Institute of Mathematical Sciences in Madras recently. He said the Prime Minister, Mr. Rajiv Gandhi, had asked science and research institutions and the Planning Commission to draw up programmes for increasing the current expenditure in science and technology.

He expressed concern over the lack of interaction among scientists, social scientists and philosophers, and called upon them to work together to give a new momentum to science, particularly in its approach to social and economic development.

New Engg. Colleges for Andhra

The Andhra Pradesh State Government is reported to have accorded sanction for establishment of two engineering colleges, at Mahabubnagar and Godavarikhani in Karimnagar district from the academic year 1989-90. This is, however, subject to the approval of All India Council of Technical Education.

News from UGC

INSAT-1B Programme of UGC

Between 18th March to 31st March, 1989 the following schedul-of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV Network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

18.3.89

"Handicrafts of Andhra Pradesh—V"
"Lending the Light"
"Career Guidance—Travel & Tourism"

19.3.89

No Telecast

20.3.89

"Handle With Care"
"Indian Economy—III"
"Termaculture II"

21.3.89

"Change the Interdisciplinary Way"
"Dental Diseases"

22.3.89

No Telecast

23.3.89

"Computer—The Stupid Genius'
"Lagacies of Ice Age"
"Present Perfect Tense"

24.3.89

No Telecast

25.3.89

"Jawaharlal Nehru; His Vision of Science"
"Middle Indian Cinema"
"Career Guidance—Linguistics"

26.3.89

No Telecast

27.3.88

"Optical Properties of Nematic & Cholistic Liquid Crystals
"An Interview with Dr. Swaminathan"
"The Fight Against Hunger—Farming and Ecology—I"

28.3.89

"Naming of Organic Compounds"
"Plan Your Lecture"
"Anesthesia"

29.3.89

"Electroslag Casting"
"In Search of the Past—Empires of Maya & Aztechs"
"From Molecules in Space to Life on Earth"

30.3.89

"Graphics with Microcomputers—I Introduction"
"Rocks"
"The Story of Writing—The Beginning"

31.3.89

"Ooty Radio Telescope"
"Miraculously My Own"
"University Round Up"

News from Abroad

Cambridge Blacklisted

Cambridge University has become the most spectacular victim of U.K.'s Economic and Social Research Council's (ESRC) tough policy on Ph.Ds. The council has put the university on its blacklist of institutions where ESRC studentships can no longer be held because fewer than 40 per cent of Cambridge's Ph.D. students have managed to complete their degree in the prescribed four-year period.

Also placed on the blacklist are St. Andrews, the London School of Hygiene and Tropical Medicine and South Bank Polytechnic. These four join 13 others already on the ESRC list. They will be banned for two years from October.

Of 45 ESRC studentships taken up at Cambridge from 1982 to 1984, the period over which the threshold is calculated, only 16 submitted their Ph.Ds within four years, pulling Cambridge down below the threshold by four percentage points. Duncan Macallan, chairman of the University of Cambridge Board of Graduate Studies, said that Cambridge's submission rate had fallen by 2 per cent since the 1980-82 period.

Last October the ESRC took a decision to integrate its sanctions policy with the process of recognizing departments for research studentship eligibility. Under the new policy, an institution submission rate will be calculated on the basis of only those departments nominated for recognition, thereby allowing institutions to release successful departments from sanctions incurred by weaker colleagues.

The ESRC defends its sanctions policy on the grounds that it is encouraging progressively higher submission rates. Its 1988 survey shows an 8 per cent improvement on the four year submission rate for 1984 starters standing at 55 per cent—over the figure for 1983 starters. ESRC chairman, Professor Howard Newby, said: "The councils is pleased that submission rates have continued to rise. This has not been achieved at the expense of increased failure or referral rates, but instead reflects the greater care and attention given to doctoral research management by institutions, department and supervisors.

We Congratulate...

1. **Dr. Pratima Asthana who has been appointed Vice-Chancellor of the Gorakhpur University.**
2. **Dr. Kirti Singh who has been appointed Vice-Chancellor of the Himachal Pradesh Agricultural University.**
3. **Dr. K. Krishna Murthy who has taken over as the Vice-Chancellor of the University of Agricultural Sciences, Hebbal, Bangalore.**

UNIVERSITY NEWS

Form IV

(See Rule 8)

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I, Sutinder Singh, hereby declare that the particulars given above are true to the best of my knowledge and belief.

Sd/-
Publisher

IUNYFEST 1988-89

A Report

The fourth Inter University National Youth Festival (IUNYFEST) which started at the Indian School of Mines, Dhanbad on January 31, 1989 came to a grand finale on February 4, 1989. About 500 delegates from different universities participated in the annual Youth Festival which was sponsored by the Association of Indian Universities (AIU) in collaboration with the Department of Youth Affairs & Sports, Govt. of India.

The Festival was off to a colourful start with the unfurling of flags, bursting of crackers, release of piegons and colourful balloons. The National Tri Colour, AIU Flag and ISM Flag were unfurled by the Chief Guest Prof. Nimai Sadan Bose, Vice-Chancellor, Visva Bharati University; Dr. S K. Agrawala, Secretary, AIU and Prof. D.K. Sinha, Director, Indian School of Mines, Dhanbad respectively. This was followed by a colourful march past by the participants to the tune of 'Sare Jahan Se Aachchha'. Prof. D.K. Sinha welcomed the participants while Dr. S.K. Agrawala described the genesis and objectives of the Youth Festival. Dr. N.S. Bose stressed that better offsprings would be produced only through the marriage of science and technology with arts and culture.

The cultural events of the Festival opened with the item of Skit in which the C.S. Azad University of Agriculture & Technology, Kanpur was the first entry with spoofs on Seoul Olympics, Big Ben Jonnson drug abuse and all that. Most of the other entries depicted the theme of National Integration. Poster Making on the themes 'Let Peace nestle in the head', 'Equality keeps the World stable' etc., was another event. There were other informal events like Hindi Extempore, Hindi JAM etc., which kept the youth on their toes. The most colourful cultural programme was, however, featured by the South Calcutta Ballet Troup which presented a few captivating folk songs and dances with seemingly original compositions.

Out of five entries for Mime, four portrayed the need to foster national unity as their theme. Rabindra Bharati University portrayed the corruption and deceit prevalent in our present day society. Bharathidasan University highlighted the evils of communal strife.

Mime was followed by non-percussion Solo Instrumental Young grand masters, particularly from Jodhpur University who played on Santoor, raga charukesi and Rabindra Bharati University who played on Sarod, proved par excellence.

Bihu, folk dance of Assam created a mood of festivity and gaiety. The lovely damsels in their traditional costumes danced in joyous abandon to the accompainment of instruments. Scientillating presentation came from Bharathidasan University as dancers presented Karagam. Dancing to the accompainment of the Thavil and the nadaswaram the dancers presented the gamut of folk dance with balancing feats. Dr. H.S. Gour University, Sagar presented a dance of the tribal interiors of Bastar.

The informal events of Kathak Dance was presented by Madhukar Anand, while Nahar Brothers regaled the audience with violin and tabla recital.

In One Act plays Bombay University impressed with realistic and honest portrayal of life—the life story of the Katkari tribals of Thane district who are lured by contractors and are grossly underpaid. They want to return to their homes but are not allowed and tortured. Manipur University excelled through skillful depiction of ascent into the third dimension as the ideas are conceived by formations and not dialogues which made them lucid and simple. Plays by M.D. University, Rohtak and Patna University also won the hearts of audience. The event of Classical Dances was a mixture of Kathak, Odissi, Bharatnatyam and Kuchipudi, interestingly covering all the four zones of the country. S. Rajendran of Bombay University was delightful at his Bharatnatyam through which he depicted the story of a Harijan boy yearning to enter Lord Nataraja's temple which ultimately was fulfilled. His lining, actions and expressions were par excellence. Vanaja Lal of Telugu University was another treat to watch presenting Kuchipudi dance with good control and immaculate performance.

In the Light Vocal Solo event Vishu Bhatnagar of Maharshi Dayanand University, Rohtak and Madhav Bhave of Jiwaji University impressed with their touching style of rendering Ghazal and song.

Western Group Song and Vocal Solo items won the hearts of youth gathered from all over India.

'Baithaks' & 'Mahafils' were held everyday during late evenings giving opportunity to the youth to listen to some of the maestroes, who attended festivals as judges or contingent incharges, like Prof. M.A. Aliv, Kajal Sharma, Sampson David, Prem Chand, Prof. Yashpal and Smt. Sandhya Bajpai.

The Valedictory Session was held at the main pandal. Shri L.P. Shahi, Minister of State for Education and Culture, Govt. of India, was the Chief Guest at the Valedictory Function. Shri A.N. Haksar presided. The Minister appealed to the youth to maintain and sustain our own cultural heritage, without going much after the pop culture. Reports on the Festival were presented by Prof. D.K. Sinha, Director, Indian School of Mines, Sampson David, Cultural Officer, AIU, and Prof. R.K.S. Chouhan, Convener, IUNYFEST.

University of Bombay bagged the Overall Championship while the runners up Trophy was lifted by Bharathidasan University.

Inter University National Youth Festival

RESULTS

A. MUSICAL ITEMS

1. Classical Vocal Solo (Hindustani or Carnatic)
   - (i) Bombay University
   - (ii) Jiwaji University
   - (iii) Andhra University, Waltair
   - (iv) Punjabi University, Patiala
2. Classical Instrumental Solo (Percussion)
   - (i) Bhopal University
   - (ii) Madurai Kamaraj University
   - (iii) Jammu University
   - (iv) K.S.D.S., Darbhanga
3. Classical Instrumental Solo (Non-percussion)
   - (i) Rabindra Bharati University
   - (ii) Bombay University
   - (iii) Jodhpur University
   - (iv) Mahatma Gandhi University
4. Light Vocal (Indian)
   - (i) M.D. University, Rohtak
   - (ii) Jiwaji University
   - (iii) Rabindra Bharati University
   - (iv) Mysore University
5. Western Vocal (Solo)
   - (i) Goa University
   - (ii) Pondicherry University
   - (iii) Devi Ahilya Vishwavidyalaya, Indore
   - (iv) Annamalai University
6. Group Song (Indian)
   - (i) Bharathidasan University
   - (ii) Mysore University
   - (iii) Banasthali University
   - (iv) Berhampur University
7. Group Song (Western)
   - (i) Bharathidasan University
   - (ii) Annamalai University
   - (iii) Bombay University

B. DANCE ITEMS

1. Folk/Tribal Dance
   - (i) Bharathidasan University
   - (ii) University of Rajasthan
   - (iii) Guwahati University
   - (iv) H.S. Gour Vishwavidyalaya
2. Classical Dance
   - (i) Bombay University
   - (ii) Telugu University
   - (iii) Banasthali Vidyapith

C. LITERARY EVENTS

1. Quiz
   - (i) Andhra University
   - (ii) Kerala University
   - (iii) Aligarh Muslim University
   - (iv) Goa University

D. THEATRE EVENTS

1. One Act Play
   - (i) Bombay University
   - (ii) Manipur University
   - (iii) M.D. University, Rohtak
   - (iv) Patna University
2. Mime
   - (i) M.D. University, Rohtak
   - (ii) Rabindra Bharati
   - (iii) Bombay University
   - (iv) Bharathidasan University
3. Skits
   - (i) Agra University
   - (ii) Guwahati University
   - (iii) Patna University
   - (iv) M.S. Baroda

E. FINE ARTS

1. On the Spot Painting
   - (i) Kashmir University
   - (ii) Aligarh Muslim University
   - (iii) Patna University
   - (iv) Gujarat University
2. Cartooning
   - (i) Nagpur University
   - (ii) Bharathidasan University
   - (iii) Punjab Agriculture University
3. Collage
   - (i) Patna University
   - (ii) Rajasthan Agriculture University
   - (iii) Marathwada University
4. Poster Making
   - (i) Jamia Millia Islamia
   - (ii) Amravati University
   - (iii) Bombay University
5. Clay Modelling
   - (i) Rabindra Bharati University
   - (ii) Patna University
   - (iii) Devi Ahilya Vishwavidyalaya
   - (iv) Sukhadiya Vishwavidyalaya

CHAMPIONS

1. Fine Arts	Patna University
2. Theatre	1. Bombay University 2. M.D.U., Rohtak
3. Dance	1. Bharathidasan
Joint Runners	(a) Rajasthan University (b) Bombay University
4. Music	Bombay University
5. Quiz	Andhra University

OVERALL CHAMPION : BOMBAY UNIVERSITY
OVERALL RUNNERS UP : BHARATHIDASAN UNIVERSITY

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertation as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Physics

1. **Chauhan, Gayatri.** *Preparation and characterization of epitaxial and polycrystalline thin films.* Delhi. Prof. P.C. Mathur, Department of Physics and Astrophysics, University of Delhi, Delhi.

2. **Khani, Parviz Hossein.** *Positron annihilation studies in condensed matter.* Delhi. Prof. P.C. Jain, Department of Physics and Astrophysics, University of Delhi, Delhi.

3. **Saikia, Bipul Kumar.** *Phase transition studies in liquid crystalline materials.* Delhi. Prof. P.C. Jain, Department of Physics and Astrophysics, University of Delhi, Delhi.

Chemistry

1. **Dixit, Kiran.** *Kinetics of oxidation of some aromatic phenols by ceric cerium.* Devi Ahilya. Dr. S.M. Chitnis, P.M.B. Gujarati Science College, Indore and Dr. R.G. Verma, P.M.B. Gujarati Science College, Indore.

2. **Girish Kumar, K.** *Titrimetric methods for the analysis of some carbohydrates and pharmaceuticals using two-N-bromides.* Kerala. Dr. P. Indrasenan, Reader, Department of Chemistry, University of Kerala, Trivandrum.

3. **Kakkudiyil, George Thomas.** *Solvolitic studies of avid phthalic esters of some tertiary alcohols.* Kerala. Dr. K. Saramma, Prof., Department of Chemistry, University of Kerala, Trivandrum.

4. **Radhakrishnan, P.S.** *Studies on some schiff base complexes of lanthanide nitrates and percholorates.* Kerala. Dr. P. Indrasenan, Reader, Department of Chemistry, University of Kerala, Trivandrum.

Earth Sciences

1. **George, A.V.** *Structure and geochemistry of the high grade metamorphic terrain around Polur, North Arcot District, Tamil Nadu, South India.* Kerala.

2. **Sahay, Rakesh Ranjan.** *Morphotectonic studies of the part of Narmada River basin with special reference to geological controls.* Delhi. Dr. G.S. Roonwal, Prof, Department of Geology, University of Delhi, Delhi.

BIOLOGICAL SCIENCES

Microbiology

1. **Bhandari, Subhash Kumar.** *Characterization of components responsible for efficacy and toxicity of pertussis vaccine.* HP. Dr. S.N. Saxena, Department of Microbiology, CRI, Kasauli.

2. **Mahajan, Bhuvaneshwari.** *Studies on immunogenicity, safety and genetic markers of polio type 3 seed virus derived from the RNA plague purified 80+1 virus.* HP. Dr. (Miss) J. Sokhey, Department of Microbiology, CRI, Kasauli.

3. Maheshwari, Satish Chandra. *Studies for development of alternative methods for testing potency of diphtheria and titanus components in DPT group of vaccines.* HP. Dr. (Mrs) S.B. Sharma, Department of Microbiology, CRI, Kasauli.

4. Mehta, Virinder Kumar. *Preparation and standardization of Japanese encephalitis (J.E.) vaccine using primary chick embryo on hamster kidney cells.* HP. Dr. S.N. Saxena, Department of Microbiology, CRI, Kasauli.

Botany

1. Archana, V.J. *Tissue culture studies in some medicinal plants : Micropropagation and induction of medicinally important secondary metabolites in cultured cells and tissues.* Kerala. Dr. G.M. Nair.

2. Haseena Beevi, V.M. *Studies on immunological changes with pollen and other antigens before and after immunotherapy in bronchial asthma.* Kerala. Dr. P.M. Mathew, Prof., Department of Botany, University of Kerala, Kariavattom and Dr. P. Ravindran, Director and Prof., Department of T.B. and Respiratory Diseases, Medical College, Trivandrum.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Baruah, Arun Kumar. *Estimation of eigenelements in a two-parameter eigenvalue problem.* Dibrugarh. Dr. B.N. Mena, Reader, Department of Mathematics, Dibrugarh University, Dibrugarh.

2. Das, Ranjit Kumar. *Study on the growth and the space of entire functions of several complex and variables represented by multiple Dirichlet series.* Calcutta.

3. Gupta, Anil Kumar. *Multiple hyper geometric function and their application.* Bundelkhand. Dr. R.C. Singh Chandel, Department of Mathematics, D.V. College, Urai, Jalon.

4. Iyengar, K.S. Ramani. *Topics in point set topology : Contributions to dimension theory.* Karnatak. Dr. S. R. Malghan, Prof., Department of Studies in Mathematics, Karnatak University, Dharwad.

5. Kundu, Krishna. *Some problems on the generation of water waves at an inertial surface.* Calcutta.

6. Meshram, Mayoordhwaj Chaitramji. *Some contributions to hydromagnetic turbulance.* Nagpur. Dr. N. E. Joshi, Department of Mathematics, Nagpur University, Nagpur.

7. Mohammed, T. *Special functions and their applications.* Calicut. Dr. V.C. Nair, Prof., Department of Mathematics, Regional Engineering College, Calicut.

8. Quasim Razi. *Approximation of functions by Bernstein type operators.* Aligarh. Prof. A.H. Siddiqui, Department of Mathematics, Aligarh Muslim University, Aligarh.

9. Sarma, Deepak Kumar. *Flow and heat transfer of third order fluids.* Dibrugarh. Prof. G.C. Sarma, Department of Mathematics, Dibrugarh University, Dibrugarh,

10. Sunandakumari, V.M. *Theory of differential inequalities with application to singular perturbation problems and method of lines.* CUST. Dr. N. Ramanujam, Reader, Department of Mathematics, Bharathidasan University, Tiruchirapalli.

11. Varadarajan Lakshmi. *New representations of lie algebras and identities involving special functions.* IIT Delhi. Prof. H.L. Manocha, Department of Mathematics, Indian Institute of Technology, New Delhi.

Statistics

1. Dhar, Swapan Kumar. *Distribution free tests for scale ane location* Delhi.

2. Dutta, Kamaleswar. *Some studies of stress strength models in reliability theory.* Dibrugarh. Dr. G. L. Srivastava, Reader, Department of Statistics, Dibrugarh University, Dibrugarh.

Astronomy

1. Vyas, Moti Lal. *Photometric study of two southern algol type binaries.* Osmania.

Physics

1. Bhosale, Chandrakant Hari. *Studies on preparation and photoelectrochemical characterization of antimony based ternary chalcogenide films.* Shivaji. Dr. S.H. Pawar, Reader, Department of Physics, Shivaji University, Kolhapur.

2. Datta, Alokmay, *Studies on the rotational spectra of molecules using microwave and radio frequency microwave double resonance spectroscopy.* Calcutta.

3. Deshpande, G. K. *Study of mangnetoelectret state in polyvinyl chloride (PVC).* Barkatullah. Dr. M. L. Khare, MACT, Bhopal.

4. Hassan, Mohsen Hussain Ali. *Studies on compound semiconductor ($ZnIn_2 Te_4$) thin films.* Patel. Dr. S.M. Patel, Prof. University Science and Instrumentation Centre, Sardar Patel University, Vallabh Vidyanagar.

5. Indurkar, Vijay Kumar Samuel. *Studies of electronic systems for application in experimental Mossbauer spectroscopy.* Nagpur. Dr. P.K. Patwardhan, Computer Division, Bhaba Atomic Research Centre, Bombay.

6. Jajoo, Shrikisan Nathmal. *Ultrasonic study and thermodynamic properties of binary liquid mixtures.* Amravati. Dr. C. S. Adgaonkar, Reader, Department of Physics, Institute of Science, Nagpur.

7. Jamadar, Vajir Mohammad. *Studies on some aspects of ferroelectrics in solid solutions, lead-barium titanate and lead-strontium titanate.* Shivaji. Dr. S.N. Chavan, Department of Physics, Shivaji University, Kolhapur.

8. Jha, Ramanand. *Cosmological singularity, torsion and creation field.* IISc.

9. Kamaraj, V. *Vibrational analysis of certain polyatomic molecules and infrared and Raman spectra of some substituted 4-selenanones.* Madras.

10. Kaushik, Bhagwan. *Studies on optoelectronic properties of semiconductor devices for Infrared.* IIT Delhi. Prof. O.P. Agnihotri, Department of Physics, Indian Institute of Technology, New Delhi and Shri K.C. Chhara. Scientist E, S.S P.L., Lucknow Road, Delhi.

11. Khare, Pavan Kumar. *Study of thermostimulated discharge current in doped films of organic systems.* HS Gour. Prof. A. P. Srivastava, Department of Physics, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

12. Kulshrestha, Krishna Kumar. *Electron transport studies in single crystals of n-type cadmium selenide.* Delhi.

13. Lakshmaiah, B. *Vibrational spectra and normal vibrations of some substituted anisoles.* Kakatiya. Dr. G. Ramana Rao, Reader, Department of Physics, Kakatia University, Warangal.

14. Mohan Prabhu K. *Studies on synthesis and characterization of high silica zeolites.* Patel. Dr. M.K. Agarwal, Prof. and Head, Department of Physics, Sardar Patel University, Vallabh Vidyanagar.

15. Mukhopadhyay, Chandidas. *Some theoretical studies on the chain ordering and odd-even effect in liquid crystals.* Calcutta.

16. Narasimha Ayyar, V. *Phonons and solitons in crystal lattices.* Kerala. Dr. K.S. Viswanathan, Prof. and Head, Department of Physics, University of Kerala, Kariavattom.

17. Ramanathan, Uma. *Ponderomotive effect in nonlinear wave plasma interaction and role of chaos.* IIT Delhi. Prof. M. S. Sodha, Department of Physics, Indian Institute of Technology, New Delhi and Dr. D. Subbarao, Centre for Energy Studies, Indian Institute of Technology, New Delhi.

18. Saha, Sujit Kumar, *Studies on ion beam-plasma interaction.* Calcutta.

19. Saraf, Bhubaneswar. *Ultrasonic wave propagation in turbid media.* Sambalpur. Dr. Kulamani Samal, Prof. and Head, Department of Physics, Sambalpur University, Burla.

20. Sharan, Kishori. *Spectroscopic studies of some tri-substituted benzene derivatives.* Magadh.

21. Singh, Krishna Mohan. *Study of electron energy degradation in the ionospheres of Earth and Venus.* Magadh.

22. Vaid, Bikram Ashok. *Structural disorder model for melts, amorphous semiconductors and pressure induced transitions.* H.P.

23. Vijay Baboo. *Thermal properties of A-15 superconductors and phonons in ternary and quaternary alloys.* IIT Delhi. Dr. H. C. Gupta, Department of Physics, Indian Institute of Technology, New Delhi.

24. Vishnuvardhan Reddy, C. *Thermal expansion of some zircon-type and chalcopyrite-type compounds.* Osmania.

25. Zaboli, Mahmood. *Positron annihilation studies in aerosol OT reverse micellar systems.* Delhi.

Chemistry

1. Abha Rani. *Chromatographic studies on proteins, cholesterol and certain enzymes in blood groups in subjects suffering from portal hypertension.* Rohilkhand. Dr. R.P.S. Rajput, Bareilly College, Bareilly.

2. Achyutha Rao, S. *New synthetic methods in transition metal organometallic reagents generated utilizing combinations on* $MX_n - Na\,BH_4$ MgH_2 and magnesium. Hyderabad. Dr. M. Periasamy, School of Chemistry, University of Hyderabad, Hyderabad.

3. Agarwal, Mridula. *Some physical and biochemical studies on blood samples of cases suffering from systemic hypertension and their A-B-O susceptibility.* Rohilkhand. Dr. R.K. Agarwal, Bareilly College, Bareilly.

4. Aggarwal, Rachna. *Biological properties of pyrimidine derivatives and their effect on DNA.* Delhi,

5. Agrawal, Mahesh Prasad. *Kinetics and mechanism of chloramine oxidation of some organic compounds.* Bundelkhand. Dr. R.K. Shukla, Head, Department of Chemistry, Artara College, Artara, Banda.

6. Balagopal, P. *Kinetic studies of x-tert butyl (P-methoxy) benzyl acid phthalate in water and aqueous organic solvents.* Kerala. Prof. K. Saramma, Department of Chemistry, University of Kerala, Trivandrum.

7. Bala Swamy, G. *Synthesis and characterization of some VIII group metal chelates with polyfunctional amides.* Kakatiya. Dr. S. Jagannatha Swamy, Department of Chemistry, Kakatiya University, Warangal.

8. Baruah, Arpan Kumar. *Dipolar electrocyclisation and related reactions.* Dibrugarh. Dr. J.S. Sandhu, Asstt. Director, Regional Research Laboratory, Jorhat.

9. Bassi, Kamal Dev. *Designing of protecting reagents useful in peptide chemistry with handles attachable to polymers.* HP.

10. Borbaruah, Moheswar. *Some aspects of silicon-mediated reactions.* Dibrugarh. Dr. R.P. Sharma, Head, Natural Products Chemicals Division, Regional Research Laboratory, Jorhat.

11. Borthakur, Dipak Ranjan. *Studies on some aspects of cycloaddition reaction and related transformations.* Dibrugarh. Dr. J.S. Sandhu, Asstt. Director, Regional Research Laboratory, Jorhat.

12. Chakrabarti, Bidyut. *Studies on the kinetics of certain reactions of octahedral complexes of chromium (III).* Calcutta.

13. Chaudhary, Beer Singh. *A study of biological markers in crude oil and sediments with special reference to amino acids.* HP.

14. Dixit, Satish Chandra. *Studies on some new derivatives of organozirconium (IV) and organotitanium (IV) with O,N or S containing ligands.* Delhi.

15. Dutta, Montumoni. *Studies on oxa and thiadiazoles and their biological activity.* Dibrugarh. Dr. J.C.S. Kataky, Scientist, Syn. Org. Chemistry Division, Regional Research Laboratory, Jorhat.

16. Dutt, Mahesh. *Studies in synthesis of isoquinoline alkaloids through electron transfer and benzyne mediated cyclisations.* Panjab.

17. Ganapathi, L. *Investigations of high-tec oxide superconductors and other oxide systems by electron microscopy and cognate techniques.* IISc.

18. Gangopadhyay, Ashis Kr. *Kinetics and mechanism of substitution of aquoligands from cis-diaquo bis (biguanide) chromium (III) cobalt (III) ions by polydentate ligands.* Burdwan. Prof. Gourisankar De, Deparment of Chemistry, University of Burdwan, Burdwan

19. Gunasekaran, T. *Some thermodynamic studies on ternary systems involving sodium and oxygen.* Madras.

20. Gupta, Dinesh Chandra. *Synthetic and structural studies of transitional metal nitrosyl complexes involving simple and biologically important ligands.* Bundelkhand. Dr. R.C. Marya, Department of Chemistry, Artara P. G. College, Artara, Banda.

21. Gupta, Kalpana. *Phytochemical investigation of some Indian medicinal plants.* HS Gour. Dr. S.K. Srivastava, Reader, Department of Chemistry, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

22. Gupta, Shailendra Kumar. *Studies on comparative in complexation behaviour of halogen substituted acetation.* Bundelkhand. Dr. S.C. Khurana, Department of Chemistry, D.V. College, Urai, Jalon.

23. Jain, Tanoj Kumar. *Structural investigations of aerosol OT microemulsions.* Delhi.

24. Joseph, George. *Spectral studies of lanthanide complexes with biologically active ligands.* Bhavnagar. Dr. S.N. Misra, Prof., Department of Chemistry, Bhavnagar University, Bhavnagar.

25. Kale, Baburao Daulatrao. *Potentiometric studies in ternary complexes of some lanthanides.* Nagpur. Dr. T.H. Mhaske, Department of Chemistry, Vidarbha Mahavidyalaya, Amravati.

26. Kesavulu Reddy, N. *Syntheses of some naturally occurring sesquiterpenes.* IISc.

27. Majumdar, Gargi. *Studies on oxygen and nitrogen heterocycles.* Calcutta.

28. Mariadoss, R. *Investigations on the preparation and physico-chemical characterization of ferrites of telecommunication importance.* Osmania.

29. Marwein, B.L. *Ultrasonic studies of some weakly interacting systems and solid state phase diagram and spectral aspects of a few molecular complexes.* NEHU. Dr. S.N. Bhat, Department of Chemistry, North Eastern Hill University, Shillong.

30. Mathew, Charlly. *Electrical properties and percolation phenomena in oil-continuous microemulsions*. Delhi.

31. Mathew, T.V. *Synthetic studies on model peptide fragments and operator sequences of LAC repressor protein.* Delhi.

32. Nageswara Rao, G. *Elucidation of structures of triterpene acids from Sesamum lacinatum and chemical investigation of plants belonging to the genus Spermacoce.* Sathya Sai. Prof. N. R. Krishnaswamy, Department of Chemistry, Sri Sathya Sai Institute of Higher Learning, Prasanthinilayam.

33. Nanjunda Swamy, K. S. *Investigations of novel chalcogenides and pnictides of some transition metals.* IISc.

34. Narendra Babu, T.G. *Mossbauer and differential scanning calorimetric studies of iron-rich amorphous alloys.* Hyderabad. Prof. R. Jagannathan, School of Chemistry, University of Hyderabad, Hyderabad.

35. Oommen, K. Susan. *Physico-chemical studies on some complexes of iron III.* Keral. Dr. C.P. Prabhakaran, Prof., Department of Chemistry, University of Kerala, Trivandrum.

36. Pal, Tushar Kanti. *Physico-chemical studies and applications of the newly synthesised polymers.* Nagpur. Dr. R.P. Kharat, Department of Chemistry, Institute of Science, Nagpur.

37. Pandey, Jyotsna. *Electrometric and absorptiometric studies on some metal complexes.* HS Gour. Dr. K.S. Pitre, Reader, Department of Chemistry, Dr. Harisinh Gour Vishwavidyalava, Sagar and Dr. A.K. Guru, Dy Director, Forensic Science Laboratory, Sagar.

38. Patel, Bharatkumar Kanaiyalal. *Studies on some resins and their metal chelates.* Patel. Dr. M.M. Patel, Prof. Department of Chemistry, Sardar Patel University, Vallabh Vidyanagar.

39. Patel, Vijaykumar Jashbhai. *Studies on poly-schiff bases and their polychelates* Patel. Dr. M.N. Patel, Prof., Department of Chemistry, Sardar Patel University, Vallabh Vidyanagar.

40. Pavan Kumar, P.N.V. *Molecular orbital studies on the structure and clusters and molecules.* Hyderabad. Dr. E.D. Jemmis, Reader, School of Chemistry, University of Hyderabad, Hyderabad.

41. Prasad, Rameshwar. *Chemical investigation of some Indian medicinal plants.* Magadh.

42. Rajendran Pillai, S. *Chemistry of carban in sodium-steel system.* Madras.

43. Ramachandran, K.L. *Characterization of the complexes of 2 & 4 thiomidobenzylpyridinium chlorides.* Madras.

44. Rao, K.J. *Towards understanding the glassy state.* IISc.

45. Raut, Arun Ramrao. *Potentiometric studies in mixed ligand quarternary chelates of some lanthanides.* Amravati. Dr. T.H. Mhaske, Department of Chemistry, Vidarbha Mahavidyalaya, Amravati.

46. Sajadian, Seyed Kamal. *Synthetic studies on new nitrophenyl azides and benzofuroxans.* Delhi.

47. Saraf, Binda Digambar. *Reactivity of 1-(2-hydroxyphenyl)-5-phenyl-4-pentene-1, 3-diones.* Amravati. Dr. K.N. Wadodkar, Department of Chemistry, Vidarbha Mahavidyalaya, Amravati.

48. Sarma, Runima. *Polymerization initiated by sandwich complexes.* Dibrugarh. Prof. N.N. Dass, Department of Chemistry, Dibrugarh University, Dibrugarh.

49. Sathyanarayana, Swargam. *New contributions to the chemistry of homoisoflavonoids and flavonoids.* Delhi.

50. Sen, Arunabha. *A study of some sulphonamide benzimidazoles as metal complexing ligands.* Calcutta.

51. Sharma, Umesh Chandra. *The synthesis of new biologically active chelating agents containing nitrogen, oxygen and sulphur as heteroatoms and their complexation with metals.* Aligarh. Dr. S.K. Tiwari, Reader, Department of Chemistry, Aligarh Muslim University, Aligarh.

52. Sinha, Asis Kumar. *Studies on the interaction of metal ions, insecticides and drugs with biologically active substances.* Calcutta.

53. Somaiah, P. Veera. *Some aspects of catalysis and oxidation of organic compounds by osmium tetroxide and ruthenium tetroxide in different media: A kinetic study.* Osmania.

54. Sujatha, K. *Synthetic and mechanistic studies involving triazino-aza-heterocycles loading to pharmacologically active principles.* Osmania.

55. Tabassum, Sartaj. *Physio-chemical studies on metal chelates af sulphur and nitrogen containing ligands.* Aligarh. Dr. Khwaja Salahuddin.

56. Tausiful Hasan.. *Investigations on the colour reactions of biological compounds and their quantitation by spectrometry.* Rohilkhand. Dr. R.N. Mehrotra, K.G.K. College, Moradabad.

57. Verma, Sudha. *Development and application of moisture and fire retardant coatings for sunhemp fibre.* Barkatullah. Dr. S.S. Gupta, Prof., Department of Chemistry, M.V.M. Bhopal and Dr. Navin Chand, Scientist, Regional Research Laboratory, Habibganj, Bhopal.

Earth Sciences

1. Ashamanjari, K.G. *Chemical petrology of the granulite complex in parts of Nilgiri Hills and in Bhavani Shear Zone, Tamilnadu, South India.* Mysore. Dr. C. Srikantappa, Lecturer, Department of Geology, Manasagangotri, Mysore.

2. Chalani, Chanda. *Study of relief and micro relief with refereace to lithological and structural control around Ajmer, Rajasthan.* Vikram. Dr. K.K. Singh, Head, Department of Geology, Vikram University, Ujjain.

3. Dasgupta, Sabyasachi. *Structure and stratigraphy of the precambrian rocks around Jaikan, Singhbhum District.* Calcutta.

4. Karthikeyan Thampi, P. *Geology of the munnar granite, Idukki District, India.* Kerala. Dr. P.K. Rajendran Nair, Prof. and Head, Department of Geology, University of Kerala, Kariavattom.

5. Laxmana Murthy. S. *Soil geochemical and hydrogeological investigations of Dulapally basin.* Osmania.

6. Umapathi Varma, Y.V. *Studies on groundwater management in the area West of Hyderabad, A.P.* Osmania.

7. Veera Bhavana Kumar, G. *Geology of the area in different parts of Kurnool District with special reference to economic potentiality and ground water occurrences.* Osmania.

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1. Akila, R. *Solid state galvanic sensors : Some studies on concepts and materials.* IISc.

2. Arora, Balbir Kumar. *Design of a foodgrain storage system for rural areas.* IIT Delhi. Prof. (Mrs.) P. Vasudevan, Rural Development and Technology, Indian Institute of Technology, New Delhi.

3. Arumugham, Arni Munuswamy. *Yield line analysis of corner panel of an orthotropic flat slab system.* Andhra.

4. Bhanu Prasad, D. *Decision support data of interacting factors for design of footings.* IISc.

5. Dutta, P.K. *Discrete vortex method for separated and free shear flows.* IISc.

6. Gahlot, Vinay Kumar. *Effect of particle size distribution and material properties on the rheological parameters of slurries and the performance of slurry pumps.* IIT Delhi. Prof. R.C. Malhotra, Department of Applied Mechanics, Indian Institute of Technology, New Delhi and Prof. V. Sheshadri, Department of Appiied Mechanics, Indian Institute of Technology, New Delhi.

7. Gubara, Abdelhalim Rahama Ahmed. *Physicochemical and nutritional studies on traditional Sudanese sorghum staple food (kisra), supplemented with edible groundnut cake.* Mysore. Dr. G. Ramanatham, Area Coordinator, Oil Seeds Technology, Central Food Technological Researcn Institute, Mysore.

8. John, K.V. *Optimum desiga of trusses from available sections.* IIT Delhi. Prof. C.V. Ramakrishnan, Department of Applied Mechanics, Indian Institute of Technology, New Delhi and Dr. K.G. Sharma, Department of Civil Engineering, Indian Institute of Technology, New Delhi.

9. Khandare, Shashikant Shrikumar. *Some investigations on the use of pulverised coal as substitute fuel in a diesel engine.* IIT Delhi. Dr. R.D. Garg, Department of Mechanical Engineering, Indian Institute of Technology, New Delhi and Dr. R.R. Gaur, Department of Mechanical Engineering, Indian Institute of Technology, New Delhi.

10. Kurien, K.C. *Reliability and availability analysis of repairable system using discrete event simulation.* IIT Delhi, Prof. O.P. Chawla, Industrial Tribology, Machine Dynamics and Maintenance Engineering Centre, Indian Institute of Technology, Delhi and Prof. G.S. Sekhon, Department of Applied Mechanics, Indian Institute of Technology, New Delhi.

11. Langer, Mohammed Hanif. *Sublimation transfer printing of cotton and polyester/cotton blends with disperse dyes.* IIT Delhi. Prof. R.B. Chavan, Department of Textile Technology, Indian Institute of Technology, New Delhi.

12. Narasimha Rao, K. *Influence of deposition parameters on the optical properties of TiO_2 and SiO_2 films.* IISc.

13. Panda, Manohar. *Some studies on series ferroresonant circuit.* Sambalpur. Dr. S. Prusty, Prof., Department of Electrical Engineering, Sambalpur University, Burla.

14. Prabhakar, Kasalanati. *Studies on production and utilization of charcoal for rural applications.* IIT Delhi. Dr. R.C. Maheshwari, Centre for Rural Development and Technology, Indian Institute of Technology, New Delhi and Dr. O.P. Vimal, Director, N.C.E.S., Lodi Road, New Delhi.

15. Ramachandran Narayan. *Flow through wide angle annular diffusers without and with swirl.* IIT Delhi. Pr f. R.C. Malhotra, Department of Applied Mechanics, Indian Institute of Technology, New Delhi.

16. Ravichandran, K.S. *Microstructural aspects of near thershold fatique crack growth and crack closure in HSLA steel and Ti-6A1-4V alloy.* IISc.

17. Satpal Singh. *Resolution enhancement aspects in B-scan ultrasonography.* IIT Delhi. Prof. S.N. Tandon, Centre for Biomedical Engineering, Indian Institute of Technology, New Delhi and Prof. H.M. Gupta, Department of Electrical Engineering, Indian Institute of Technology, Delhi.

18. Sharma, Gyanendra Kumar. *Lube oil alkalinity and its modelling in diesel engines.* IIT Delhi. Prof. O.P. Chawla, Industrial Tribology, Machine Dynamics and Maintenance Engineering Centre. Indian Institute of Technology, New Delhi.

19. Sharma, Sunil Dutt. *Catalytic hydrocracking and hydrogenation of aromatic compounds in trickle bed reactor.* IIT Delhi. Prof. M.K. Sarkar, Department of Chemical Engineering, Indian Institute of Technology, Delhi and Dr. (Mrs.) K. Gadgil, Centre for Energy Studies, Indian Institute of Technology, Delhi.

20. Sinha, Santosh Kumar. *Lateral compression of square tubes and their cross layered systems.* IIT Delhi. Prof. N.K. Gupta, Department of Applied Mechanics, Indian Institute of Technology, Delhi.

21. Singh, Satendra Pal. *A study of earth coupled and evaporative passive cooling systems.* IIT Delhi. Dr. N.K. Bansal, Centre for Energy Studies, Indian Institute of Technology, New Delhi.

22. Syamala, P. *Velocity, shear and friction factor studies in smooth rectangular channels of small aspects ratios for supercritical flows.* IISc.

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Chakravartty, D.N. Assam's annual plan for 1989-90. *The Assam Tribune*, 11.2.89.

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Iyengar, P.K. Role of science and technology in nation building. *The Pioneer*, 20.2.89.

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Paddayya K. End of an era in our archaeology (Prof. H.D Sankalia). *National Herald*, 25.2.89.

INSTITUTE FOR PLASMA RESEARCH

(An Autonomous Institute of Dept. of Science & Technology)

GOVERNMENT OF INDIA

Near Indira Bridge, Gandhinagar Highway
Bhat, Gandhinagar - 382 424

Advt. No. 02/89

The Institute for Plasma Research invites applications from young, bright and motivated candidates for the following research programmes.

I. PH. D. PROGRAMME

II. SHORT TERM RESEARCH PROGRAMME

This Institute conducts research in plasma physics, free electron lasers, relativistic electron beams, non-linear dynamics, chaos and physics of solid surfaces. This research programme provides exciting opportunities and excellent facilities to work on high technology areas such as high power lasers, spectroscopy (visibly, ultra violet, x-ray and mm—wave); laser induced fluorescence; bolometry; x-ray tomography; nuclear detection techniques; interferometry; [high-current, high-voltage pulsed power systems, sophisticated data acquisition system, sophisticated computer codes and numerical simulation.

PH.D. PROGRAMME

Candidates with M.Sc. in Physics/Applied Physics and those appearing in the final examination are also eligible to apply. Selection will be on the basis of personal interview and written test at the Institute and the travel expenses for the same by second class to & fro rail fare by shortest route will be provided. The selected candidates will undergo prescribed course work, mainly during the first year. The scholarship is Rs. 1800/ p.m. during the first two years. Subject to evaluation it may be increased to Rs. 2100/- p.m. in the next three years. Normally the Ph.D. programme is for 5 years and on its successful completion deserving candidates may be offered regular positions in the Institute. Deadline for application is **April 10, 1989.**

SUMMER PROGRAMME

Students of M.Sc. (Physics) who are now in their first year of study are eligible to apply for this programme. Selected candidates will be provided the opportunity to interact actively with scientists of IPR in the frontier research areas of Plasma Physics for six weeks from May 23-June 30, 1989. The participants will receive a consolidated stipend of Rs. 1000/-, to & fro second class rail fare by shortest route and free hostel accommodation. Deadline for applications is **April 10, 1989**.

Applications for these programmes should include a detailed resume specifying name, date of birth, address (present and Permanent), academic record (School leaving record, B.Sc., M.Sc. with percentage of marks, rank in the university, subjects taken and the name of the university/institution). Candidates applying for Short Term Summer Programme must attach two letters of reference from their teachers. Applications should be sent to the Chief Administrative Officer at the above address superscribing the envelope the Advt. No. and the programme applied for

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National Council Of Educational Research And Training

National Council of Educational Research and Training invites applications for the following posts :

1. **Chief Editor** : (Oae Post) Reserved for Scheduled Castes

Qualification and Experience : (1) A Master's degree from a recognised University. (2) Minimum 10 years experience in compiling, editing, planning and supervising of publications especially school textbooks, monographs and reports in Organisation of repute. (3) Knowledge of printing techniques and typography and should be proficient in English.

2. **Art Officer** (One Post) Un-Reserved.

Qualification and Experience : (1) Should possess a Degree or a Diploma in Commercial Art from a recognised Institution. (2) Should have atleast seven years experience of art work related to the printing of publications, i.e. page layout, cover and jacket design illustration, preparation of paste-ups, etc. in a publishing house of repute.

3. **Phototype Setting Machine Operator** (One Post) Un-Reserved.

Qualification and Experience : Essential (1) Higher Secondary or its equivalent. (2) Hindi and English type writing speed 35 w.p.m. and 50 w.p.m. respectively. (3) Sound knowledge and experience of operating a standard Phototype Setting Machine perferably Compt./Edit Digital Phototype setter. (4) Knowledge and Experience in processing bromide paper and films.

Desirable : Knowledge of Offset Printing Press.

4. **Artist Gr. 1** (2 Posts) (One Post Reserved for Scheduled Castes and One Un-reserved).

Qualification and Experience : (1) A degree or a diploma in Commercial Art from a recognised Institution. (2) At least five years experience in the preparation of black and white and colour illustrations, cover design, layout work, etc. for books and periodicals in a publishing house of repute. (3) Knowledge of printing techniques. (4) Knowledge of photography and its application to designing.

Note : The condition of a degree or diploma in Commercial Art or Art as the case may be from a recognised institution would be relaxable in case of really outstanding persons.

5. **Script Writer** (3 Posts) (One Post Reserved for Scheduled Castes, One Post Reserved for Scheduled Tribes and one Un-reserved).

Qualification and Experience : Essential : (1) Degree from a recognised University. (2) 3 Years experience of writing, shooting scripts for film/TV. (3) Proficiency in any one of the main languages mentioned in the 8th schedule of the constitution.

Desirable : Research experience leading to scripts.

6. **Senior Technical Officer** : (One Post) Reserved for Scheduled Castes.

Qualification and Experience : Essential : (1) A good degree in Mechanical or Electrical Engineering. (2) At least seven years professional experience in a responsible capacity in handling maintenance of plant, equipment and store-purchase.

Desirable : (1) Knowledge of maintenance of plant and equipment (involving Mechanical and Electrical repairs). (2) Knowledge of Govt. of India rules relating to purchase of stores, finance etc; should have adequate experience in dealing with stores procedures including receipts and issues, custody, codification inventory control and stores verification. (3) Knowledge of estimating and cost accounting, budgetary control, project, evaluation, etc. (4) Knowledge of Project Planning, monitoring involving preparation of feasibility project reports. Should be conversant with PERT, CPM cost benefit analysis.

7. **Floor Manager** : (One Post) Reserved for Scheduled Castes.

Qualification : (1) Matriculation or equivalent. (2) Diploma from a recognised Institution in Stage craft. (3) Should have passed examination of Matric Standard with Hindi/English as one of the subjects or as medium of instruction.

Desirable : Three years experience of Floor Management in Stage, Film or TV.

8. **Audio Radio Producer Gr. III** (One Post) Reserved for Scheduled Castes.

Qualification and Experience : Essential : (1) Degree from a recognised University. (2) Three years experience in research for Writing radio scripts or collection of data and materials for writing books.

Desirable : Familiarity with operation of audio equipment.

Note : Posts at Sr. No. 1 and 6 to 8 are reserved for the respective categories mentioned against each. However, in case suitable candidates belonging to the respective categories, are not available, candidates from other categories will also be considered as per rules on the subject.

Scale of Pay, Age limit as on 1.2.1989

1.	Chief Editor	Rs. 3000-5000	Below 45 years
2.	Art Officer	Rs. 3000-4500	Below 40 years
3.	Photo Type Setting Machine Operator	Rs. 2000-3200	Below 30 years
4.	Artist Gr. I	Rs. 2200-4000	Below 35 years
5.	Script Writer	Rs. 1640-2900	35 years
6.	Senior Technical Officer	Rs. 3000-4500	Below 45 years
7.	Floor Manager	Rs. 1400-2300	Between 21 and 30 years
8.	Audio-Radio Producer Gr. III	Rs. 1400-2300	30 years

Note : (a) Some of these posts are temporary but likely to continue. (b) There is no age limit for the employees of the Council. Age concession allowed for SC/ST candidates as per Govt. of India instructions. (c) The number of vacancies is tentative and is liable to change. (d) The selected candidates can be transferred to any of the establishments of the Council, anywhere in India. (e) If a candidate is found to be of exceptional merit, relaxation of qualifications, experience, age etc. may be given by the Selection Committee in its discretion. (f) The prescribed qualifications are minimum and possession of the same does not entitle candidates to be called for interview when the number of applications received in response to the advertisment is large, it will not be possible or convenient for the Council to interview all these candidates. The Council may then restrict the number of candidates for interview to a reasonable limit, on the basis of qualifications, experience higher than the minimum prescribed in the advertisement.

Application forms can be obtained from the Secretary, National Council of Educational Research and Training (NCERT), (Recruitment Section-3, Room No. 8, V Floor), Zakir Husain Block, Sri Aurobindo Marg, New Delhi-110016 enclosing an unstamped envelope (23 cm x 10 cm) giving name of the post, serial number and advertisement number. The outer cover should be marked 'Request for application form.' Separate application should be submitted for each post.

Those employed in Govt./Semi. Govt /Autonomous Organisations should send their applications through proper channel. They may, however, if they so desire, submit advance copy of their application direct to the Council enclosing the application fee, if applicable.

Completed application form alongwith attested copies of certificates of qualifications and experience etc. and a crossed Indian Postal Order for Rs. 8/- (no fee for SC/ST candidates) in favour of Secretary, NCERT, should reach him by **10th April, 1989.** Applications received without prescribed fee and/or received after the closing date will not be entertained. (Advertisement No. TR-2)

Secretary
National Council of Educational Research and Training
Sri Aurobindo Marg,
New Delhi-110 016.

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GOVERNMENT OF INDIA

MINISTRY OF HUMAN RESOURCE DEVELOPMENT (DEPARTMENT OF EDUCATION)

COMMONWEALTH SCHOLARSHIP/FELLOWSHIP PLAN NEW ZEALAND/AUSTRALIA/CYPRUS AWARDS 1989-90.

Applications on plain paper as per prescribed format are invited from Indian nationals for Commonwealth Scholarship nominations for post-graduate studies/research in New Zealand/Australia/Cyprus.

1. NEW ZEALAND

Subject Fields and Minimum Qualifications Required

(a) Soil Science : (b) Dairy Technology : (c) Geo-Thermal Technology : A first Class Master's Degree in the subject or Allied fields.

2. AUSTRALIA : (Provisional)

Subject Fields and Minimum Qualifications Required

Solar Energy : A first Class Master's Degree in the subject or Allied fields.

Essential Experience : (For New Zealand and Australia)

At least two years (a) teaching/research or practical experience on 31st December, 1988 after acquiring the qualifications prescribed above.

Age : Below 35 years on 1st August, 1989 (preference will, however, be given to candidates between 22 and 28). Two years relaxation may be given in case of candidates belonging to Scheduled Castes/Scheduled Tribes, other things being equal.

3. CYPRUS

Subject Field : Postgraduate Diploma in Business Management tenable from September, 1989.

Minimum Qualifications Required : A first Class Masters Degree in Business Administration.

Essential Experience : At least ten years experience on **31.12.1988** as working executives after acquiring the prescribed qualification.

Age : Below forty years on 1st August, 1989. Two years relaxation may be given in case of candidates belonging to Scheduled Castes/Scheduled Tribes, other things being equal.

Value : (a) Travel to and from New Zealand/Australia/Cyprus by air passage as arranged by the authorities of the respective country. (No provision has been included for the expenses of dependants except in the case of Australia) (b) Expenditure on board and lodging, books and other study material, tuition fee, internal travel related to studies and medical care will be met by the Respective Governments.

N.B. 1. Only candidates with 60% marks and above at the prescribed qualification are eligible. Where grades are mentioned the candidate must indicate the conversion formula adopted by the University/Institution and should also indicate equivalent percentage of marks. 2. Equivalent foreign degree will be considered. 3. Each application must be accompanied by attested copies of (a) Certificate of age (b) marks sheet of the qualifying examination and (c) All degrees/diplomas/certificates. 4. Candidates who have already been abroad for study/training specialisation on a scholarship are eligible to apply only if they have been in India for atleast three consecutive years after their return from aborad. 5. Applications in subject-field other than those specified above will not be considered. 6. Applications should be accompanied by a Crossed Postal Order of Rs. 5.00 (Rs. 1.25 only in the case of SC/ST and other Backward Class candidate, who must attach a certificate to the effect that they belong to one of these classes) payable to the Secretary, Ministry of Human Resource Development (Department of Education), New Delhi. Applications which do not contain postal orders will not be considered. 7. Applications of candidates who are abroad will not be considered. 8. Only Postal Orders issued after the date on which the advertisement was published in newpapers will be accepted. 9. Candidates who do not possess the requisite qualifications need not apply. 10. Applications received after the prescribed date and incomplete application will not be entertained 11. Candidates should have adequate knowledge of Geographical situation, Cultural & Heritage of India and donor Government. 12. Since these scholarships are offered by Foreign Government, applications should invariably be submitted in English only. 13. Interview letters in a particular subject are sent only to the best candidates in order of merit after their applications are judged by a duly constituted Selection Committee of Experts. 14. Canvassing in any form will be disqualification. **Last Date :** The Candidates should apply for the above scholarship on a plain paper with a Passport size recent photograph, furnishing the details/particulars in the given format to the Assistant Educational Advisor, Department of Education, External Scholarships Division, Section E.S.4, Room No. 517 'B', Shastri Bhawan, New Delhi-110 001 by **31st March, 1989.**

The applications received late will not be entertained.

PROFORMA OF APPLICATION

Recent passport size photograph duly signed in Block capitals to be pasted here. Without photograph application will be considered incomplete.

1. Name of the Scholarship Scheme
2. (a) Subject (b) Sub-subject
3. Name of the Candidate (in Block Letters), with full mailing address
4. Date of birth and State to which the candidate belongs
5. Whether a member of SC/ST or a tribal or aboriginal community.
6. Academic record starting from High School/Higher Secondary (Attested/Photostat copies of certificate to be attached.)

Name of the University/Board/ Institution	Exam(s) Passed	Year of Passing	Division/ Class with Position; if any*	% of marks obtained and position, if any.	Subjects taken.

* (In case of no class is awarded and only grading is done, the conversion formula adopted may be mentioned.

7. Details of Professional Practical Training and Research Experience specifying the period and number of papers published, previous employment with the name and date of employment, if any.
8. Nature of the present employment with date of appointment, designation and the name and address of the employer.
9. Have you been abroad? if so, give full particulars of the country and the period. Also mention the year of return to India. Purpose of visit also to be indicated.)
10. Proposed programme of study research/training specifying;
    (i) the work at present engaged in;
    (ii) nature and programme of study research/training desired.
    (iii) future plans/prospects after the proposed studies/research/training and;
    (iv) How are these related to the technical or economic development of India.
11. Crossed Postal Orders of Rs. 5.00 (Rs. 1.25 paise in case of SC/ST candidates, etc.) payable to the Secretary, Ministry of Human Resource Development (Deptt. of Education) may be attached with the form with passport size photograph (one copy).

NOTE : Employed persons must send their applications fully sponsored by the employers. However, advance applications will be considered provisionally pending sponsorship by employers provided postal order and attested copies of certificate of age and qualifications are attached to advanee copy of the application. (ii) Candidate should specifically indicate country for which his application is to be considered.

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UNIVERSITY OF DELHI

DELHI-110007

No. Estab. IV/119/89 **Dated the 6th March, 1989**

Applications on the prescribed form are invited for the post of **Registrar** of the University in the scale of pay of Rs. 4500-150-5700-200-7300, so as to reach the "Registrar, University of Delhi, Delhi-110007" by **10th April, 1989** at the latest.

Essential Qualifications

A postgraduate degree with atleast 55% marks or its equivalent grade;

Atleast 15 years of experience as Lecturer/Reader, of which 8 years should be in Reader's grade with experience in Educational Administration. **OR**

Comparable experience in research establishments and other institutions of higher education. **OR**

15 years of administrative experience, of which 8 years as Deputy Registrar or an equivalent post.

The appointment may be for a tenure of **five years** which could be renewed for further similar terms **or on permanent basis**. The prescribed educational qualifications may be suitably relaxed in respect of such internal candidates who have a very long administrative experience and outstanding record of performance.

The prescribed applicatian form, etc. can be had from Room No. 205, Estab. IV Section of the University from 9.30 a.m. to 12.30 p.m. and 2.00 p.m. to 5.00 p.m. either personally or by sending a self-addressrd envelope (size 13 c.m, x 28 c.m.) with postage stamps worth Rs. 6/- addressed to "The Registrar, University of Delhi, Delhi-110007".

Madan Mohan
REGISTRAR

JAWAHARLAL NEHRU UNIVERSITY

NEW DELHI

ANNOUNCEMENT FOR ADMISSION-1989-90

The University will hold Entrance Examination for admission to various programmes of study in the following 24 Centres on May 19, 20 and 21, 1989.

Ahmedabad, Bangalore, Baroda, Bhubneswar, Bombay, Calcutta, Chandigarh, Cochin, Dehradun, Delhi, Gauhati, Hyderabad, Indore, Jaipur, Lucknow, Madras, Madurai, Patna, Pune, Ranchi, Shillong, Srinagar, Varanasi and Vijayawada.

SCHOOLS AND PROGRAMMES OF STUDY

I. **School of International Studies : (i) M.Phil/Ph.D.** in International Politics, Organisation, Disarmament & Political Geography; Diplomatic Studies, International Legal Studies, International Trade and Development; South Asian, Central Asian, Southeast Asian & Southwest Pacific Studies; Chinese, Japanese and Korean Studies; West Asian, North African and Sub Saharan African Studies; American, Latin American & West European Studies and Soviet & East European Studies.

(ii) **M.A.** in Politics (International Studies)

II. **School of Languages :** (i) **M.Phil./Ph.D.** in French, German, Russian, Hindi, Linguistics & English, Spanish and Urdu and **Ph.D.** in Japanese, Persian and Modern Western Philosophy.

(ii) **M.A.** in English, Linguistics, Hindi, Urdu, Persian, Arabic, Chinese, Japanese, French, German, Russian and Spanish.

(iii) **B.A. (Honours)** in Persian, Chinese, Japanese, French, German, Russian and Spanish (with entry points both in 1st and 2nd year) and Modern Arabic (with entry point in 1st year only). Students successfully completing the 3 year B.A. (Hons.) become eligible to seek registration to M.A. in the respective language as at (ii) above.

III. **School of Social Sciences : M.Phil./Ph.D.** programme is offered by following Centres which have their curricular and research work organised on interdisciplinary basis with a focus on some major problems of study.

Centres : Economic Studies and Planning, Historical Studies, Political Studies, Regional Development, Social Systems, Educational Studies (Psychology, Sociology, Economics and History of Education) and Social Medicine & Community Health.

(ii) **Master of Community Health** (MCH/Ph.D.) : Candidates holding MBBS with one year's experience after internship or Master's degree in Nursing with one year's experience in Community Health in Nursing.

(iii) **M.A.** in Economics, Geography, History, Political Science & Sociology.

IV. **School of Life Sciences : (i) M.Phil./Ph.D.** in areas of interdisciplinary research : Genetic Engineering, Molecular Biology and Genetics, Biochemistry, Plant and Animal Tissue Culture, Developmental Biology, Cell Biology, Immunobiology, Neurobiology, Microbiology, Radiation and Cancer Biology, Biophysics, Photobiology, Bioenergetics, etc.

(ii) **M.Sc.** in Life Sciences : Open to candidates from both Biological and Physical Sciences.

V. **School of Environmental Sciences : (i) M.Phil./Ph.D.** in areas of interdisciplinary research with application of Biological and allied Sciences, Chemistry, Geology and Physics.

(ii) **M.Sc.** in Environmental Sciences : Interdisciplinary course with Atmospheric, Biological and Earth Sciences and Pollution Studies.

VI. **School of Computer & Systems Sciences :** (i) **M.Tech., M.Phil/Ph.D.** : The school offers academic programmes leading to the degrees in diverse aspects of Computer & Systems Sciences.

(ii) **Master of Computer Applications** (MCA) 3-year programme.

VII. **School of Physical Sciences : Ph.D.** in Physical Sciences : Research and teaching in border line areas of Physics & Chemistry, the emphasis for the present being on topics of Chemical Physics. Condensed Matter Physics, Non-equilibrium Statistical Mechanics. Stochastic Processes & Nonlinear optics and Light Scattering.

VIII. **Centre for Biotechnology** : **Ph.D.** Research areas : Cholera Genetics and Vaccines, Photosynthesis; Eukaryotic Gene Expression and Synthetic Oligonucleotides in diagnostics and protein engineering.

Reservation of Seats : 22½% (15% for SC and 7½% for ST) and 3% seats are reserved for SC/ST and Physically Handicapped candidates. SC/ST and Physically Handicapped candidates passing the qualifying examination are eligible to apply irrespective of their percentage of marks.

HOW TO APPLY

Application Form together with detailed Instructions including eligibility conditions can be had either personally on cash payment of Rs. 6/- per set or by post by sending crossed Indian Postal Order for Rs. 20.00 payable to **Jawaharlal Nehru University, New Delhi** for one set of forms and postage along with a self-addressed envelope of 28cms. x 20cms. size to **The Deputy Registrar (Admissions), Jawaharlal Nehru University, New Delhi-110067.** Additional application form can be had for Re. 1/- each plus postage if required by mail. Those requiring more than one form may add Re. 1/- for each extra form.

There being different forms for different levels of programmes, candidates should clearly indicate in the request as well as on the top of the self-addressed envelope the name of the programme for which the form is required. A candidate can apply for more than one programme by filling up separate application form for each programme.

Issue of Forms : From February 10, 1989 to April 4, 1989.

Last Date for Receiving Completed Forms : April 11, 1989.

Note : 1. Candidates who are due to appear in the respective qualifying examination prescribed for eligibility for admission to a particular programme are also eligible to sit in the entrance examination as per conditions laid down in this regard. However in the event of selection their admission shall be subject to their securing the prescribed percentage of marks in the qualifying examination and submission of all documents including final marksheet of the qualifying examination.

2. Announcement for admissions to Direct Ph.D. and Part-Time programmes will be notified separately in May 1989.

International Institute for Population Sciences

DEONAR, BOMBAY 400 088

ADMISSION NOTICE

Applications are invited for admission to the following programmes of the Institute for the academic session 1989-90 to commence from 3rd July, 1989.

1. MPS (Master of Population Studies)
   (one year full time course)
2. M.Phil (Master of Philosophy in Population Studies)
   (one year full time course)
3. Ph.D (Three year programme)

Selection will be made through interview or other methods as decided by admissions committee.

Eligibility

1. For MPS : Masters degree of a recognised university in any of the following subjects : Statistics, Mathematics, Economics, Sociology, Anthropology, Psychology, Geography.

OR

Master's degree in subjects other than mentioned above with some experience in population or allied field.

2. For M.Phil : (i) Master's degree in Population Studies from the Institute or an equivalent degree from other university with atleast 55 per cent marks in the aggregate.

(ii) Certificate/Diploma in Population Studies/Demography from the Institute with 55% marks prior to 1988-89, and have a Master's degree in the relevant subject.

Those who have been offered M.Phil/Ph.D. fellowship by UGC/ICSSR etc., for a period of at least 2 years, may be admitted directly. However, they have to obtain the M.P.S. degree of the institute within one year with a minimum of 55% marks in the aggregate.

3. For Ph.D : The M Phil degree in Population Studies is a basic requirement for admission to the Ph.D. programme. In selected cases direct admission to Ph.D. may be given to candidates on the condition that they shall complete the M.Phil programme within one year. The candidates for Ph.D. programme must have had passed National Level Test conducted by UGC/ICSSR, etc.

Fellowships

For MPS	:	Twenty fellowships @ Rs. 500/- p.m.
For M.Phil	:	Nil
For Ph.D.	:	Four fellowships @ Rs. 1800/- p.m. plus the contingency grant of Rs. 5000/- per annum.

Those appearing at the qualifying examinations also may apply. However, the selected candidates have to produce the result of the qualifying examination at the time of interview.

Application forms can be obtained from the office of the Assistant Registrar, International Institute for Population Sciences, Deonar, Bombay 400 088 free of cost. The request for application form should accompany a self-addressed envelope of size 25 x 12 cms. affixed with postage stamp of Rs. 2 60.

The envelope should be superscribed "APPLICATION FOR ADMISSION"

The last date for receipt of completed application form is 21st April, 1989.

K. Srinivasan

BIRLA INSTITUTE OF TECHNOLOGY

MESRA : RANCHI

(A Deemed to be University)

ADMISSIONS-1989

Bachelor of Engineering and B. Pharm. (4-Year) Degree Course

Entrance Examination for admission to (1) Bachelor of Engineering (4-Year) Degree course in Civil,, Electrical & Electronics, Mechanical, Electronics & Communication, Computers and Production Engineering, and (2) B. Pharm. (4-Year) Degree course in Pharmaceutical Sciences will be held on May 27th and 28th 1989 at the following centres :

Agra, Ahmedabad, Allahabad, Bangalore, Bareilly, Bhagalpur, Bhopal, Bhubaneswar, Bombay, Calcutta, Chandigarh, Delhi, Gauhati, Gaya, Ghaziabad, Gorakhpur, Hyderabad, Jaipur, Jamshedpur, Lucknow, Madras, Muzaffarpur, Patna, Ranchi, Sindri, Trivandrum and Vijayawada.

provided sufficient number of candidates opt for the proposed centres.

Qualifications

For Bachelor of Engg. : I.Sc., or 10+2 or equivalent examination with Physics, Chemistry and Mathematics; for B. Pharm. with Physics, Chemistry and Biology. Maximum age limit 21 years on 1st October. THOSE APPEARING THIS YEAR AT THE QUALIFYING EXAMINATION ARE ALSO ELIGIBLE TO APPLY. ($22\frac{1}{2}$%) Seats are reserved for SC/ST candidates.

The last date for receipt of completed application form is **10.4.1989**.

Application form can be obtained by post on pre-payment of Rs. 25/- by crossed Postal Order, payable to the Registrar, Birla Institute of Technology, Mesra. Ranchi. The request should accompany a self addressed and stamped envelope of size 26 cm. x 12 cm. bearing postage stamps of Rs. 1.80p. clearly mentioning the form required i.e. Bachelor of Engg. or B. Pharm.—as the case may be.

B.I.T. : MESRA : RANCHI
DATE : January 15, 1988

J.B. Saksena
Registrar & OSD

CLASSIFIED ADVERTISEMENTS

S.N.D.T. WOMEN'S UNIVERSITY

1, NATHIBAI THACKERSEY ROAD, BOMBAY-400 020

Advertisement No. 14

Dated : February 1989

Applications are invited in the prescribed forms available at the University Office between 10-30 a m. to 1.00 p.m. and 1.30 p.m. to 2.30 p.m. from Monday to Friday and 10.30 a.m. to 12.00 Noon on Saturday on payment of Rs. 5/- (M.O./in Cash) for the following posts, to be filled in at the University Department and its conducted institutions at Bombay and Poona, so as to reach the undersigned on or before fifteen days from the date of its advertisement. Please collect details of the posts from the counter alongwith application form.

Sr. No.	Post and Name of the Dept./Institution	Total Post	Post under Open Category	Post under Reserved Category	Medium of Teaching/ Instruction
(A)	**Dept. of Post Graduate Studies & Research, Bombay-20**				
1.	Reader in Marathi	ONE	ONE	—	MAR
2.	Lecturer in Marathi	ONE	ONE	—	MAR
3.	Reader in English	ONE	ONE	—	ENG
4.	Reader in Psychology	ONE	ONE	—	ENG
5.	Professor in Sociology	ONE	ONE	—	ENG & MAR
6.	Lecturer in Politics	ONE	ONE	—	ENG & MAR
	Under P.G. Dept. of Gujarati (Special Assistance Programme)				
7.	Research Assistant	TWO	TWO	—	—
	Under P.G. Dept. of Commerce, Bombay				
8.	Lecturer in Commerce	ONE	ONE	—	ENG
(B)	**Dept. of Post Graduate Education & Research, Centre of Education for Women, Bombay-20**				
1.	Professor in Education	ONE	ONE	—	ENG & MAR/GUJ
(C)	**Post Graduate Dept. of Education, SNDT College of Education for Women, Poona**				
1.	Lecturer in Education (Specialisation in Teacher Education/ Educational Technology/Sociology of Education/Any one of the optional papers of M.Ed.)	ONE	ONE	—	ENG & MAR
(D)	**SNDT College of Education for Women, Poona**				
1.	College Librarian	ONE	ONE	—	—
(E)	**SNDT College of Arts & C.B. College of Commerce & Economics, Bombay-20**				
1.	Lecturer in Art & Painting	ONE	ONE	—	ENG & MAR/GUJ
(F)	**SNDT College of Arts & Commerce, Poona**				
1.	Lecturer in Psychology	ONE	ONE	—	ENG & MAR
(G)	**SVT College of Home Science, Bombay-49**				
1.	Lecturer in Textiles & Clothing	ONE	ONE	—	ENG
(H)	**SNDT College of Home Science, [Poona**				
1.	Lecturer in English	ONE	ONE	—	ENG
(I)	**Dept. of Correspondence Courses, Juhu Campus, Bombay-49**				
1.	Assistant Director (Social Sciences)	ONE TMP	ONE TMP	—	ENG & MAR/GUJ
(J)	**Dept. of Continuing & Adult Education & Extn Work (Under PERC upto March 1990) Bombay-20**				
1.	Technical Assistant	ONE TMP TENURE	ONE TMP TENURE	—	—
	Under Post Master's Diploma Course in Continuing & Adult Education, Bombay-20				
*2.	Assistant Director	ONE	—	ONE	—
	Under Dept. of Continuing Education				
3.	Technical Assistant	ONE	ONE	—	—

Sr. No.	Post and Name of the Dept./Institution	Total Post	Post under Open Category	Post under Reserved Category	Medium of Teaching/ Instruction
(K)	**SNDT Women's University Library, Bombay-20**				
	Under Information Centre				
1.	Deputy Librarian	ONE TMP TENURE	ONE TMP TENURE	—	—
	Under Central Equipment Facility Unit				
2.	Lecturer (Instrumentation)	ONE	ONE		EN
(L)	**SNDT Women's University Extn Library, Bombay-49**				
1.	Deputy Librarian	ONE	ONE	—	—
(M)	**Post Graduate Dept. of Library Science, SHPT School of Library Science, Bombay-20**				
1.	Reader in Library Science	ONE	ONE	—	ENG
(N)	**L.T. College of Nursing, Bombay-20**				
*1.	Staff Nurse	As per requirement of the College		ONE (Fourth Time)	—
*2.	Ward Sister	-do-		-do-	—
3.	Sister Tutor	ONE	ONE	—	—
*4.	Lecturer in Nursing	THREE	TWO	ONE (Fourth Time)	ENG
(O)	**Dept. of Physical Education SNDT Women's University, Bombay-20**				
1.	Director	ONE TMP	ONE TMP		ENG AND MAR/GUJ
2.	Assistant Director	ONE	ONE	—	ENG AND MAR/GUJ
(P)	**Dept. of Students Welfare SNDT Women's University, Bombay-20**				
1.	Dean of Students	ONE	ONE	—	ENG AND MAR/GUJ
2.	Assistant Dean of Students	ONE	ONE	—	ENG AND MAR/GUJ
(Q)	**Dept. of Special Education Bombay-49**				
1.	Reader in Special Education	ONE	ONE	—	ENG
2.	Supervisor (in the Lecturer's Scale)	ONE	ONE	—	ENG
(R)	**SNDT Women's University Office, Bombay (Under Reservation Cell (Tenure period upto March 31, 1990)**				
*1.	Office Superintendent	ONE TMP TENURE SC/ST Only	—	ONE TMP TENURE SC/ST Only	—
(S)	**SVT College of Home, Bombay-49**				
1.	Principal	ONE	—	—	ENG AND GUJ/MAR
(T)	**SNDT Arts & Commerce College for Women, Poona**				
1.	Lecturer in Geography	ONE	—	—	ENG & MAR
(U)	**SNDT Women's University (Central) Library, Bombay-20**				
1.	Jr. Library Assistant	ONE	ONE	—	—
(V)	**SNDT Women's University Extension Library, Juhu, Bombay-49**				
1.	Jr. Library Assistant	ONE	ONE	—	—
(W)	**Post Graduate Dept. of Computer Science, Bombay-49**				
1.	Lecturer in Computer Science	ONE	ONE	—	ENG

Minimum qualifications, salary scales, etc. of the teachers are as per approved UGC Scales and qualifications. Applications of Scheduled Castes/Scheduled Tribes/Nomadic Tribes/DNT, will be considered as per Government Directives. *indicates post under reserved category and will be filled by SC/ST/DNT/BT candidates only. Incomplete applications and applications on a plain paper will not be considered. Applicants (Local) are advised to submit their application forms (duly filled in) alongwith three copies of certificates, to Inward Clerk, Stores Department, University Office, Bombay-20 within the time schedule.

REGISTRAR

Shreemati Nathibai Damodar Thackersey Women's University

1, NATHIBAI THACKERSEY ROAD, BOMBAY 400 020

Advertisement No. 15

Dated : February 28, 1989

Applications are invited in the prescribed forms available at the University office between 10.30 a.m. to 2.30 p.m. from Monday to Friday and 10.30 a.m. to 12.00 noon on Saturday, on payment of Rs. 5/- (M.O./in cash) for the following posts to be filled in at Premlila Vithaldas Polytechnic, Juhu, Santacruz (W), Bombay 400 049, so as to reach the undersigned not later than March 30, 1989. Please collect details of the posts from the counter alongwith application form.

(A) TEACHING POSTS

Sr. No.	Name of Post	No. of Posts	Post under reserved category	Medium of Teaching
1.	Head of Dress Making and Fashion Co-ordination	ONE	—	ENGLISH
*2.	Lecturer in Electronics	EIGHT	TWO	ENGLISH
*3.	Lecturer in Interior Design	EIGHT	TWO	ENGLISH
*4.	Lecturer in Ophthalmology	TWO	ONE	ENGLISH
5.	Lecturer in Food Technology	ONE	—	ENGLISH
6.	Lecturer in Physics	ONE	—	ENGLISH
7.	Lecturer in English	ONE	—	ENGLISH
8.	Instructor in Typing & Shorthand	ONE	—	ENGLISH
9.	Instructor in Ophthalmic Technology (Optometry)	ONE	—	ENGLISH
10.	Instructor in Drafting, Cutting & Sewing	ONE	—	ENGLISH
(B)	NON-TEACHING POSTS			
1.	Accountant (Senior)	ONE	—	—
2.	Commercial Artist	ONE	—	—
3.	Technical Assistant for Electronics	ONE	—	—
*4.	Technical Assistant for Ophthalmic Technology	ONE	ONE	—
*5.	Electrical Instrument Mechanic	ONE	ONE	—
*6.	Laboratory Assistant-Cum-Store Keeper	ONE	ONE	—

Minimum qualifications, salary scales, etc. of the above posts are as per approved by Technical Education Board scales and qualifications. Applications of Scheduled Castes/Scheduled Tribes/Nomadic Tribes/Denotified Tribes will be considered as per Government directives. *indicates post under reserved category and will be filled by SC/ST/DNT/NT candidates only. Incomplete applications and applications on a plain paper will not be considered. Applicants (Local) are advised to submit their application forms (duly filled in) alongwith three copies of certificates, to Inward Clerk, Stores Department, University Office, Bombay-20 within the scheduled.

REGISTRAR

KENDRIYA VIDYALAYA SANGATHAN

JNU CAMPUS

NEW MEHRAULI ROAD,
NEW DELHI-110 067

CORRIGENDUM

Reference Advt. No. davp 88/730 appeared in this paper on **Feb. 20, 1989** regarding recruitment of Teachers in various categories.

Following amendments may be noted against the advertisement.

A. **Uuder Serial No. 7 (SUPW—EG & E Teachers)**

Essential Qualifications : (i) A three year Diploma after Higher Secondary in Electrical / Electronics Engineering from an Institution recognised by State Governments / Govt. of India. (The minimum qualification for admission to the Diploma Course should be at least Higher Secondary) OR (ii) Degree in Electrical or Electronics Engineering from a recognised University. OR (iii) B.Sc. (Tech.) / B.Ed. from Regional Colleges of Education, Bhopal, Bhubaneshwar, Mysore, Ajmer.

Desirable : One year practical experience in Workshop/Institution.

(B) Under Instructions (a)—Line No. 4 : Please read the following : New Schools opened subsequently may also be added to a nearby Regional Office in which also a candidate may be posted initially.

The other things as required remain the same. Last date for receipt of applications is now extended upto **31.3.1989.**

davp 1092 (7)88

BARKATULLA UNIVERSITY

BHOPAL

No. 194/DU/Dev./UGC-JRF/89
Dated 1-3-1989

Applications in the prescribed form are invited from those candidates who have qualified in the National Education Test conducted by the Universities Grants Commission & CSIR jointly for award of vacant Junior Research Fellowships allocated to this university under different faculties.

The application form can be had from the university office either in person or by sending self-address envelope duly affixing sufficient postal stamps for the purpose. **The last date for receiving application is 28.3.1989.**

REGISTRAR

PANJAB UNIVERSITY

CHANDIGARH

CORRIGENDUM

In the Advertisement No. 2/89, the number of posts of Lecturers in the Department of Laws, Panjab University, Chandigarh may be read as only one post of Lecturer in the field of TAX LAWS, for which the essential qualifications are LL. M. degree (in Tax Laws) with good academic record. The last date for receipt of such applications has been extended till **27.3.1989.**

UNIVERSITY GRANTS COMMISSION

BAHADUR SHAH ZAFAR MARG
NEW DELHI - 110 002

Applications are invited for the post of Additional Secretary in the office of the University Grants Commission, from amongst persons who have served or are serving as a Professor/Scholar in a University or any Institution of higher education/research with atleast 10 years experience of teaching at post-graduate level or guiding research and experience of educational administration or from persons who have served or are serving as an officer of Central and State Government or Universities, Research Institutes, Autonomous Organisations, Public Enterprises, etc., in equivalent grade or in one grade lower with five years service in the lower grade not below equivalent to Reader's grade and having experience of educational administration.

The post carries a scale of pay of Rs. 5100-150-5700 plus usual allowances as admissible to Central Government servants in corresponding post in Delhi/New Delhi.

The age limit for the post is 50 years which is relaxable by 5 years for employees of the Central and State Governments, Universities and Autonomous Bodies. There will be no age limit for University Grants Commission employees.

Retirement benefits in the shape of Pension-cum-Gratuity-cum-G.P. Fund is available as also entitled to the Central Government Health Scheme and allotment of residential accommodation in the General pool of the Government of India. Till such time the residential accommodtion is made available, the selected person will be entitled to H.R.A. as per entitlement to the Central Government employee. The selected person will also be covered under the L.I.C. Group Insurance Scheme implemented for the benefit of the employees of the U.G.C. The age of superannuation will be 58 years.

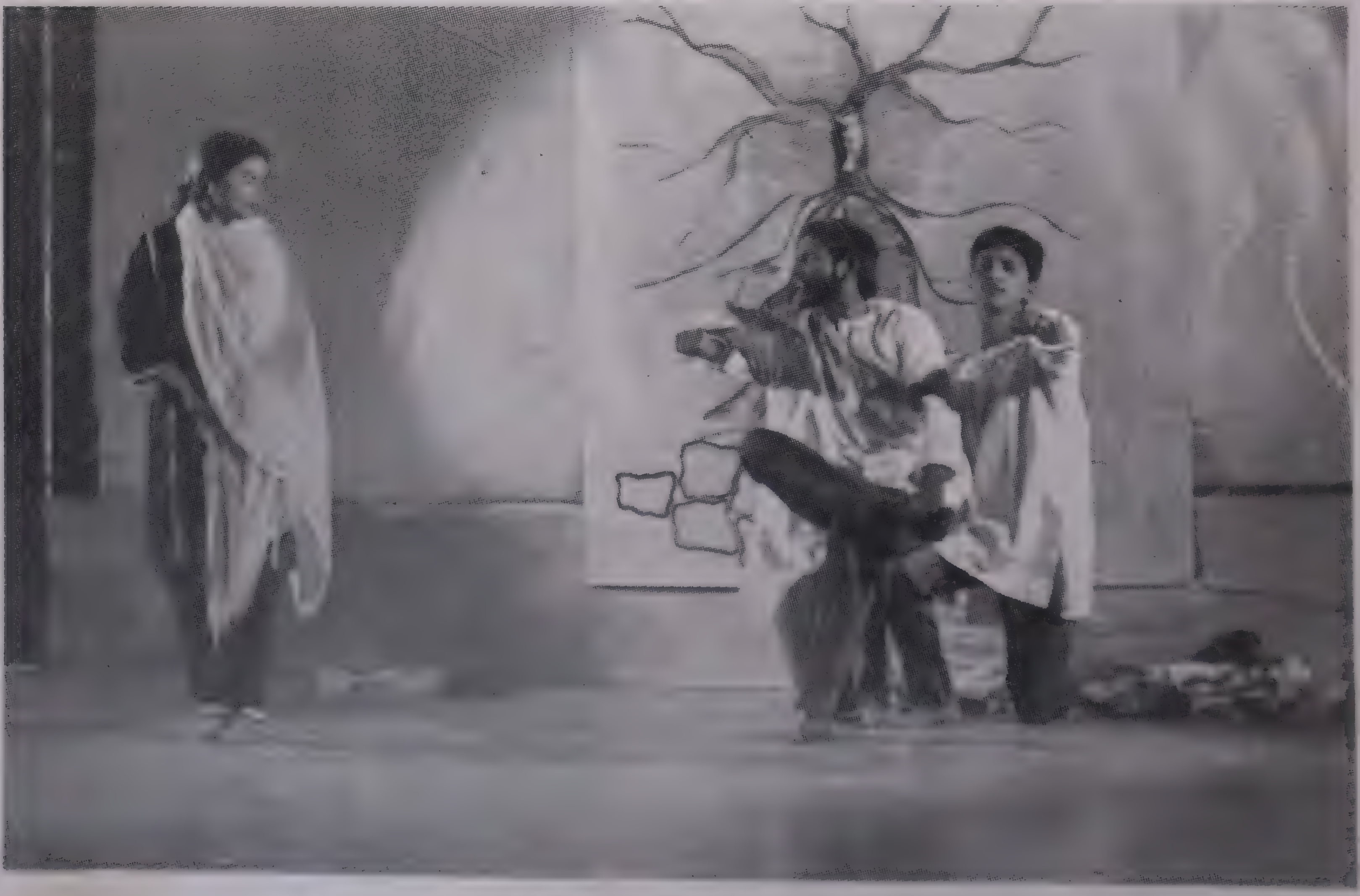
Applications on plain paper addressed to the **Chairman, University Grants Commission, Bahadur Shah Zafar Marg, New Delhi-110 002** giving full particulars about age, academic qualifications, experience of educational administration, present salary being drawn, etc. alongwith names of two persons to whom reference may be made by the Commission **should reach the Chariman within four weeks from the date of publication of this advertisement.** Persons already in employment should send their applications through their employers or else submit no objection certificate from the present employer. No separate verification of character and antecedent will be required for selected candidate who is already in employment and whose verification has already been completed.

823/11/88

IUNYFEST—1988-89

Prof. S. Md. Salahudeen (left), NSS Coordinator, Bharathidasan University, received the Runners Up Trophy from Shri L.P. Shahi, Union Minister for Education & Culture

Western Group Song by Bombay University



A scene from One Act Play by Patna University

University News

MONDAY, MARCH 20, 1989

Rs. 2.50

f. Yash Pal, Chairman, UGC, cutting the ribbon to mark the inauguration of the Institute of Remote Sensing at th
Anna University. To his left is Dr. V.C. Kulandaiswamy, Vice-Chancellor of the University.

Indian Council of Medical Research

VECTOR CONTROL RESEARCH CENTRE
PONDICHERRY-605006

M.Sc. in Medical Entomology

ADMISSION NOTICE FOR THE FOURTH BATCH FOR THE ACADEMIC YEAR 1989-90

Applications are invited for admission to the 2 year M.Sc. Course (Trimester Pattern) in Medical Entomology, affiliated to the Central University, Pondicherry. Those who have passed (i) B.Sc. with Zoology or Biology as one of the subjects, (ii) M.B.B.S., (iii) B.V. Sc., or (iv) B.Sc. in Medical Laboratory Technology are eligible for admission.

The course is run by the Vector Control Research Centre of the Indian Council of Medical Research and is supported by the UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases. The Centre has excellent facilities for research and training in vector borne diseases and their control. The faculty includes both the staff of the Centre and invited guest lecturers from research institutions in India and abroad.

Six candidates (one seat reserved for SC/ST candidates) will be selected on the basis of a written test. Another three candidates will be admitted from among inservice candidates nominated by State/Central Governments and another three seats are reserved for WHO sponsored candidates from outside India. The qualifying degrees of foreign students will have to be recognized by the Central University, Pondicherry. Therefore, they have to apply for and obtain the Eligibility Certificate from Pondicherry University before sending their application to the VCRC seeking admission into the Course. For the six open seats, only first class graduates will be called for the written test (SC/ST candidates securing II class in the qualifying degree are eligible to appear for the written test). Those who have appeared in the qualifying examination can also apply but should produce the evidence of having passed at the time of writing the entrance test.

Candidates selected for admission on Open General Quota will get a monthly fellowship of Rs. 800/- for 2 years from the ICMR.

Application forms and Prospectus can be obtained from, "The Director, Vector Control Research Centre, Indira Nagar, Pondicherry-605 006" on or before **15th June, 1989** on payment of Rs. 20/- by a crossed Indian Postal Order drawn in favour of the "Director, Vector Control Research Centre, Pondicherry-605 006". The last date for receipt of completed application form is **10th July, 1989**. Entrance test on **30th July, 1989**.

P.K. Rajagopalan
DIRECTOR

UNIVERSITY NEWS

VOL. XXVII No. 13 Price
MARCH 20 1989 Rs. 2.50

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Opinions expressed in the articles re those of the contributors and do not necessarily reflect the olicies of the Association.

ditor :
UTINDER SINGH

Librarian and User Interaction

Anand P. Srivastava*

About a hundred years ago, due to multi-dimensional growth of knowledge, ended the golden period of a scholar who was by then able to contact directly the concerned scholarly materials. Such a state of loss is bound to shock the academicians, who lost their major advantage of direct access. It is like a healthy person suddenly becoming handicapped and requiring some kind of physical aid for survival. Such a transformation should not be without psychological consequences taking the shape of a kind of hate and love relationship. The structure of relationship between users of knowledge and information (i.e. academicians and learners) at one hand and the providers of information (i.e. librarians and information scientists) on the other hand happens to contain such a strange kind of hate and love relationship. Irrespective of the details of structure of relationship between librarians and the users of libraries, it is a fact that some methods are essential for orienting the library to the user. The user of a library must recognise the profession of librarian as source of information and feel comfortable in seeking a required information. The library has acquired some teaching functions. Association of American Colleges and the Association of American University Professors have pronounced as follows :

> "Librarians perform a teaching and research role in as much as they instruct student formally and informally and advise and assist faculty in their scholarly pursuits. The function of the librarian as participant in the process of teaching and research is the essential criterion of faculty status."[1]

If the professors and administrators in India have not realised the above stated roles, it should be clear that in the process of evolution of teaching and learning processes they are far behind. Girja Kumar has very rightly asserted that "the truth of the matter is that the librarians and teachers perform roles that are not entirely dichotomous."[2] The librarians, with an academic subject expertise, reach much higher academic competence and become a source of sound guidance to the specialists in that field and no longer maintain just the rear academic arena. Thomas Kirk pleads that, " . . . a plan of course assignments and library instruction must be developed that will achieve both the subject matter objectives and intellectual skill objectives (reading, writing, critical thinking, information gathering) set by the professor, the librarian and the institution."[3] A professor of philosophy, Lawson Crowe, and a librarian Susan H. Anthes, attempted such a plan with great success even in the field of philosophy.[4] Numerous such courses are being taught successfully in various subjects at various colleges and universities and have been reported in library literature (McDonough[5] and Rothman,[6] 1983; Ready and Saltzman,[7] 1984). Our academicians have to realise that teaching roles and methods have become a common feature of university libraries in various countries. The following two

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**Fellow, Indian Institute of Advanced Study, Shimla-5.*

Indian Council of Medical Research

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P.K. Rajagopalan
DIRECTOR

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Editor :
UTINDER SINGH

Librarian and User Interaction

Anand P. Srivastava*

About a hundred years ago, due to multi-dimensional growth of knowledge, ended the golden period of a scholar who was by then able to contact directly the concerned scholarly materials. Such a state of loss is bound to shock the academicians, who lost their major advantage of direct access. It is like a healthy person suddenly becoming handicapped and requiring some kind of physical aid for survival. Such a transformation should not be without psychological consequences taking the shape of a kind of hate and love relationship. The structure of relationship between users of knowledge and information (i.e. academicians and learners) at one hand and the providers of information (i.e. librarians and information scientists) on the other hand happens to contain such a strange kind of hate and love relationship. Irrespective of the details of structure of relationship between librarians and the users of libraries, it is a fact that some methods are essential for orienting the library to the user. The user of a library must recognise the profession of librarian as source of information and feel comfortable in seeking a required information. The library has acquired some teaching functions. Association of American Colleges and the Association of American University Professors have pronounced as follows :

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If the professors and administrators in India have not realised the above stated roles, it should be clear that in the process of evolution of teaching and learning processes they are far behind. Girja Kumar has very rightly asserted that "the truth of the matter is that the librarians and teachers perform roles that are not entirely dichotomous."[2] The librarians, with an academic subject expertise, reach much higher academic competence and become a source of sound guidance to the specialists in that field and no longer maintain just the rear academic arena. Thomas Kirk pleads that, " . . . a plan of course assignments and library instruction must be developed that will achieve both the subject matter objectives and intellectual skill objectives (reading, writing, critical thinking, information gathering) set by the professor, the librarian and the institution."[3] A professor of philosophy, Lawson Crowe, and a librarian Susan H. Anthes, attempted such a plan with great success even in the field of philosophy.[4] Numerous such courses are being taught successfully in various subjects at various colleges and universities and have been reported in library literature (McDonough[5] and Rothman,[6] 1983; Ready and Saltzman,[7] 1984). Our academicians have to realise that teaching roles and methods have become a common feature of university libraries in various countries. The following two

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tables give a picture of the roles of university libraries in U.K. and U.S.A.

Table 1
Teaching Methods in Academic Libraries
(Great Britain)[7]

Teaching Methods	Conducted by No. of Libraries
With practical work	14
Seminar (undergraduate)	36
Seminar (postgraduate)	42
Tape slides (introductory)	24
Tape slides (subject)	22
Lectures (undergraduate)	34
Lectures (postgraduate)	33
Individual tours	53
Films/videotapes (introductory)	10
Films/videotapes (Subject)	5

Table 2
Academic Library Instruction Statistics[8]
(United States, December 1979)

Teaching Method	Conducted by No. of Libraries	Percentage of total
Credit courses	347	42
Seminars/Workshops	271	33
Term paper clinic	173	21
Lectures	790	95
Computer assisted	18	2
Point-of-use programmes	575	69
Tours :		
Conducted	670	81
Tape	87	10
Slide/Tape	189	17
Printed self-guided	263	32

In the field of library and information science so far over 1000 research studies have appeared in print dealing with user behaviour and information system use (Crawford,[9] 1978). Some of these studies show that when a user searches some literature, which library presents, the seeker ignores the human agent in the librarian and proceeds directly with the result of high rate of failure. Experience shows that in Indian university libraries such an approach is very high and the obvious result is failure in getting proper information. Such a hypothesis no doubt needs to obtain empirical verification but my involvement with users who came to me after their failure and later got their information through the efforts of reference librarians proves the point. At times a reference librarian has to dig deeper into the minds of the information seekers than to depend just on their words and actions. But the difficulty for librarians is that, "library services are accepted as a means of meeting simple needs, which are many. They are not accepted as obvious source of help with difficult problems. In neither case it is generally true that the job of finding information is entrusted to the library strff . . . ."[10]

On our side (Librarians) we are bound to know what kind of information various categories of users need and how often. From what kinds of documents they get them and how much effort they have to put in. Experience once again shows that about 80% demands of students are for textbooks. Researchers and faculty demand photocopies of articles in journals and not even 1% of urers demand information from reference desk. This shows that users of our libraries are not trained in information handling and as amateurs they cannot utilise the resources available in a library. There is absolute need that libraries conduct some user education programme to bring about that balance which may develop harmony in library-user relationship. Our Vice Chancellors and professors will have to examine this issue because librarians at present play only a modest part in meeting the information needs of the academic community. A campaign needs to be launched to impart courses on library and information use in our universities so that materials are used properly.

There are two phenomena that come in the way of meeting large number of simple demands of library users and patrons. These are : (1) Squirelling away of documents from their right places on shelves because a user wants to monopolise its use. So, when a reader locates that document in the catalogue but does not find it on the shelf, the reader feels frustrated. (2) Failure of the circulation department to find out if a document needed by a user is out on loan.

While the second phenomenon could be managed by developing a double-record of items on loan, the major difficulty arises in solving the first phenomenon in an open access library where users intentionally misplace or hide a document of their interest so that one could get it when one wants, and that others may not use it. This phenomenon has been found in most number of cases where a document is listed in the catalogue, and is also not on issue records, but it is not available at its proper place in the stacks. This situation can be managed by having multiple copies of documents which are in heavy demand. But the problem is how to identify such works from time to time when much of cooperation does not exist between teachers and librarians. If such titles are identified through mutual efforts from time to time it should be possible to reduce the practice of squirelling away to a great extent.

Another problem of serious nature concerns the periodicals unit of a library where pages of articles are torn making the entire volume useless. This act of vandalism happens due to lack of care on the part of faculty members. It largely happens when a teacher announces about an article in a classroom of over 30 to 40 students and there being just one copy of the journal in the library, the student who happens to reach it first normally tears it off. In such cases the librarian is less at fault by failing in his duties of a police man and greater fault is that of the teacher who announces a reference without getting multiple photocopies by cooperating with periodical librarian. My letters seeking such a cooperation with faculty members have invariably failed. Who could make the faculty to cooperate by foremanaging multiple copies of periodical articles before reference is made in tutorials or classrooms ?

But the greatest element of surprise in Indian universities is non-involvement (say, neglect) of university librarian on the Research Boards of various faculties. How can quality research be conducted in a faculty if the university librarian is not associated with research activities—i.e. selection of topics and matching of materials with the topics selected. Realising this major gap it was possible to persuade my university library committee in 1978 to recommend making the librarian an ex-officio member of various research boards of the university. The issue was vehemently opposed by the then Registrar, and a Professor of English, and many of their group-supporters in the Executive Council of the University. The Vice-Chancellor had no way left but to withdraw this item from the agenda. This act has weakened not the librarian but the quality of research in the university. There is no university in India which incorporates its librarian on research boards and the UGC has not shown any initiative in this direction. As the library profession is kept away from research activities it is also not possible to initiate researchers in the use of the library.

C.F.T.R.I. MYSORE

Yet, another neglect of serious nature is by depriving the librarian of his natural right to manage collection building programmes of the university as a whole. It is only professional librarian who can keep track of information about publications in different fields. Required subject specialisation is available in the library staff to take major initiative in this act of collection building. Teachers do not know the tools of selection and their narrow specialisation reduces their ability to deal with wider areas and other themes. Unless the library staff is provided with feet of steel, instead of the present feet of clay, in information management and services much is not going to improve and the greatest looser in the game will be the Indian scholar, his learning and research. For, the librarian exists only to strengthen these components of higher learning and research. In the present conditions of neglect the library staff will avoid the teachers and researchers, as one university librarian puts it, "the dog (representing teachers, etc.) will not bark if does not see the cat (the librarian)." This strange relationship can be improved only by quality service. The rendering of quality service demands providing necessary roles and powers to librarians which their counterparts are enjoying in developed countries, and through which they are able to perform on standard lines. Unless a strong and higher platform is provided to university librarians in India, quality information services are not likely to emerge.

Our academic circle is not the least aware that the major modern tasks of a university librarian are the following :

(1) to assess the needs of all groups of users;

(2) to prove the effectiveness of the features of library services;

(3) to establish in-house current awareness service;

(4) to look into the whole question of underutilisation of services;

(5) to conduct user education programmes;

(6) to build library collections—books, journals, etc.

(7) to manage limited funds to the best possible use;

(8) to take numerous other decisions.

None of these tasks can be performed by an Indian university librarian by the virtue of poor powers presently vested in him. He then stands helpless and the situation deteriorates. Purely quantitative statements cannot be effective. Information needs are affected by a variety of factors identified by Paisley :[11]

(1) the range of information sources available;

(2) the uses to which the information will be put;

(3) the background motivation, professional orientation and other individual characteristics of the user;

(4) the social, political and economic systems surrounding the user;

(5) the consequences of information use.

Unless the librarian is given total authority, a case like to drop a journal can never be decided. Cronin[12] suggests the following criteria to decide which a head of an academic department cannot take and the initiative is bound to come from a professional librarian, who first of all may see if the journal is also subscribed to in a local library and then consider the following points :

(1) is the journal's orientation in line with that of the organisation;

(2) is the journal of central or peripheral relevance;

(3) are there any other journals whose coverage overlaps;

(4) do your users feel that the journal gives value for money;

(5) would your users agree to the cancellation if photocopies of important articles could be provided;

(6) how many of your users would be prepared to take out a private subscription;

(7) are your users aware of the range of alternative journals;

(8) are your users capable of deriving the maximum benefit from the journal.

There will of course be many other questions to ask which only a university librarian can do. For example, faced with a serious financial crisis, I had to ask my Periodicals Librarian not to open the wrappers of journals, she considered as not used, but display them with wrappers on for some time, and if wrappers are not opened by the users such journals be recommended for sanction of their discontinuation. In many cases we found that good number of journals which were useful over a decade ago are continuing while no research work was going on the concerned topics and the expert professor had either retired, left or died. The departmental representative would not agree because then the funds will be deployed to get journals for other subjects. I had to cancel them even though a kind of personal enemity developed in him. Why should such cases go to the Vice-Chancellor ? What for the University Librarian is in a University ? But it is a different case if the University Librarian is deprived of these powers or never assigned such powers.

Identification of information needs of users can be done only with the help of professional parameters. Our professors and Vice-Chancellors are not aware of these. Information need is not a visible object. We cannot see its structure which should be like that of a doughnut having many facets and links. But it has a definite existence. Only information people can manage to identify them properly by virtue of their training and experience. If the library staff is actively involved in every big project of various departments the availability of macro and micro data, etc., will be much better even if they are of specific and ephemeral nature. It is not uncommon that users are not aware of the sources of information in their fields. Most of the senior persons get into a stage which can be described as 'sense of isolation from information', but they are in power and authority and thus show least support to library needs and the librarian's roles. Not many people realise that while the information expands at a logarithmic rate the ability of the user to process information is biologically fixed. Library and information people view a user within inter-acting cognitive, emotional and social systems and assist to make them read right materials. The library and information profession in India, being only between its second and third generations, is capable of playing all modern roles provided they are fully and properly supported by authorities and academicians. Everywhere it is found that the manpower involved in an institution gets equal importance which the institution gets, e.g. a doctor in a hospital, or a judge in a local court. But in case of a librarian and the library this universal equation is not applicable. To say it again, the library is taken to be the heart, but the librarian is not taken to be a cardiologist—not even a compounder or a nurse. How can the manpower involved be neglected if the institution's roles are to be honoured ?

Let it be fully emphasised that the university library is much greater than the sum of various departments in a university. It is only in 1860s that the pattern of departments emerged in the universities of the world. This fragmentation of human inquiry is not without its disadvantages because while we promote close examination of the parts, the vast whole is neglected by these departments. This vital loss can be compensated only by the university library. Let us find out as to how many of our past and present scholars and students have really known some of the great human minds like—Manu, Patanjali, Valmiki, Homer, Plato, Aristotle, Thomas Aquinas, Dante, Kant, Hegel, Darwin, Kalidas, Shakespeare, Descartes, Marx, Tagore and so on. Can a proper learning exclude knowing these great minds who have perplexed and inspired mankind through the ages. This galaxy is not present in a department. It is available only in the library. One would very much like that even if the faculty and students avoid meeting these great men the educated librarians should talk to them by devoting a few minutes each day. It will be a divine pleasure. By doing this, one will become the interpreter of 'blue-prints' and will know as to what questions the world's finest designers have attended to and addressed. The task of leaders—teachers, administrators, politicians, etc.—in a society is to question. to listen and to help in giving birth to new and nascent thoughts and bringing them to light. This can be achieved only through independent learning, as a life-long process, through books, etc., available in libraries. Libraries make enlightened free adults out of children through books and a balance.

We all can make only the following appeals as identified by McGarry and Burrell:[13] Social appeal : Everybody uses the library ! Prestige appeal : All the best people use the library ! Survival appeal : No. One can compete in modern life without help from the library ! Fun appeal : Use the library for fun and leisure ! Egomaniac appeal : Knowledge is power ! Fear appeal : If you don't use the library your friends will ostracize you. ☐

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TO OUR READERS

Knowledgeable and perceptive as they are, our contributors must not necessarily be allowed to have the last word. It is for you, the readers, to join issues with them. Our columns are as much open to you as to our contributors. Your communications should, however, be brief and to the point.

Need for Restructuring Teacher Education

Mamota Das*

This paper seeks to discuss the needs of teacher education for today and tomorrow arising out of the thrusts and tasks laid down in the National Education Policy (NEP) 1986. Its major objective is to highlight the current scenario of teacher education for secondary level and to suggest changes in the structure and functions of its management so that the objectives of NPE are achieved.

NPE and Teacher Education

Professional training of teachers to be employed in secondary schools is a pre-requisite in all parts of the country. In view of the central place of teacher education NPE calls for its overhaul as the first step towards education restructuring. Teacher education or teacher development is considered in three phases, namely Pre-service (student teaching), Induction (beginning teacher), and In-service (engaged in teaching).

The three phases are now considered as parts of a continuous process. The NPE lays down that teacher education should be a continuous process as pre-service and in-service both of its components are considered inseparable. Part IX of NPE (1986) has been exclusively devoted to teachers and the training of teachers highlighting the importance of the role and the status of the teacher in the society. The NPE asserts that the "status of the teacher reflects the socio-cultural ethos of a society". It further says that "No people can rise above the level of its teachers". The teachers as recognized by the NPE "should have the freedom to innovate and to devise appropriate methods of communication and activities for teaching pupils". Strengthening of teacher education institutions and consistently upgrading teachers' competencies have been emphasized in the Programme of Action too. In the context of secondary education it says (p. 26 para 9) that" The teacher competencies would be improved by attracting better qualified people to the profession as envisaged in the Policy and by improving the pre-service and in-service training programme through strengthening secondary teacher training institutions". The NPE and the Programme of Action both have stressed the need for the revision of the curriculum and methodology of teacher education.

The Prevailing System

The Challenge of Education (1985) has rightly condemned the prevailing system of teacher education by saying "Much of teacher education is irrelevant, today, what to speak of its relevance for tomorrow" (p. 54, para 3, 4, 9).

With regard to the organization of secondary schools teacher education there is no uniformity in the country. Different patterns and structures are found in different states. A large number of teacher-training institutes suffer from inadequate facilities—human, physical and academic to provide good professional education. Curricula remain unrevised for years, reading lists are out of date and practices adopted by teacher educators are in direct contradiction to ones being prescribed to prospective teachers. These teacher educators neither have any good background of the theory of teaching and the latest developments in the field of teacher education, nor they feel responsible and devoted to the profession.

The kind of climate that prevails in these departments and institutions is not at all profession oriented. Teachers remain divided in groups and so are the students. Demonstrations in teaching are not given; lessons are not supervised, and if supervised they are not carefully supervised for many reasons; practical examinations are not honestly conducted. Through these teacher education institutions it is not possible to turn out teachers that would be profession-oriented, devoted, well read and skilled having command over the subject and genuine interest in pupils. All these factors combined together render teacher education not only of poor quality and effectiveness but they also turn out teachers who carry with them negative and undesirable attitudes and values. It is these teachers who are destroying the whole system of teaching learning. The recommendations made in the NPE cannot be implemented and objectives laid down there cannot be achieved through teachers produced by such teacher education institutions.

Restructuring Teacher Education for Tomorrow

In order to be effective, teacher education in India has to be organized and managed in an entirely

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different manner. The following suggestions are offered to restructure teacher education for tomorrow :

(1) Updating the curriculum of teacher education to develop in teachers skills in the use of new technologies which may revolutionize teaching in the classroom, to develop spirit of enquiry, initiative, scientific temper, manual dexterities, conceptual clarity and linguistic skills for effective expression, to impart an awareness of intellectual and other forces shaping society, and to develop in them essential values call for a much longer duration of stay in the training colleges. In just one year it is not possible to develop that unique professional culture which is required to shape the teachers as visualized in the NPE (1986). Hence the one year pattern of teacher education (B.Ed) should be changed in order to bring about desirable changes in the trainee teachers. The duration for professional preparation of teachers has been recommended to be two years at the undergraduate level by the UGC Curriculum Development Committee headed by Prof. Vasantha Ramkumar of Kerala University. The committee has proposed one and a half years of instruction in two parts—theory and practice followed by six months of internship programme. It has proposed four papers as course subjects in the theory, nine elective and two optional subjects. The practice part comprises practice teaching, practical work, camps, work experience and participation in co-curricular activities. Internship comprises three phases, namely, orienting to internship programme, observing schools and school systems and assisting subject teachers and working as regular teacher. The report lists as many as 48 subjects as elective. Similarly it has proposed a two year programme for M.Ed. with a view to prepare (i) leaders in various fields of education, and (ii) teacher educators and educational administrators. It proposes ten papers. The course provides emphasis on Foundation of education. Curriculum instruction and evaluation have been clubbed together in one single paper. The report has gone into elaborate details in terms of defining eligibility for admission, lateral entry and several such flexible arrangements.

(2) In order to bring about uniformity in teacher education in the whole of the country, it is necessary that teacher education colleges should be structured and managed on a single pattern and these institutions should be financed wholly by the state or the central government. To begin with these institutions may adopt the same administrative and management structures, admission and recruitment procedures, examination and evaluation system.

(3) Provision of pre-service teacher education packages containing useful supplementary reading materials for teachers in order to create a learning environment and generate awareness in the teachers about their roles. These packages will not only enhance their professional development and thereby raise the quality of school education in our country but also give the teachers freedom to innovate, to devise appropriate methods of communication and activities relevant to the needs and capabilities of and the concerns of the community.

(4) There is too much emphasis in textbooks on Western ideas, and teachers under training do not get exposed adequately to Indian philosophical and psychological concepts of education. Therefore, NCERT and UGC should/and have undertaken the task of preparing new learning materials, which include textbooks, reference books, slides, films etc., and which reflect the Indian experience in education. Conscious internalisation of a healthy work ethos and of the values of a humane and composite culture will be brought about through appropriately formulated curricula.

(5) Introduction of competency-based teacher education as an open system approach for designing, conducting and evaluating preparatory programmes. Using this approach, teacher educators will be required to :

(a) define the roles they expect teachers to play and from those roles to define competencies they assume to be essential to role performance/playing,

(b) designing learning alternatives they believe will facilitate the acquisition of those competencies,

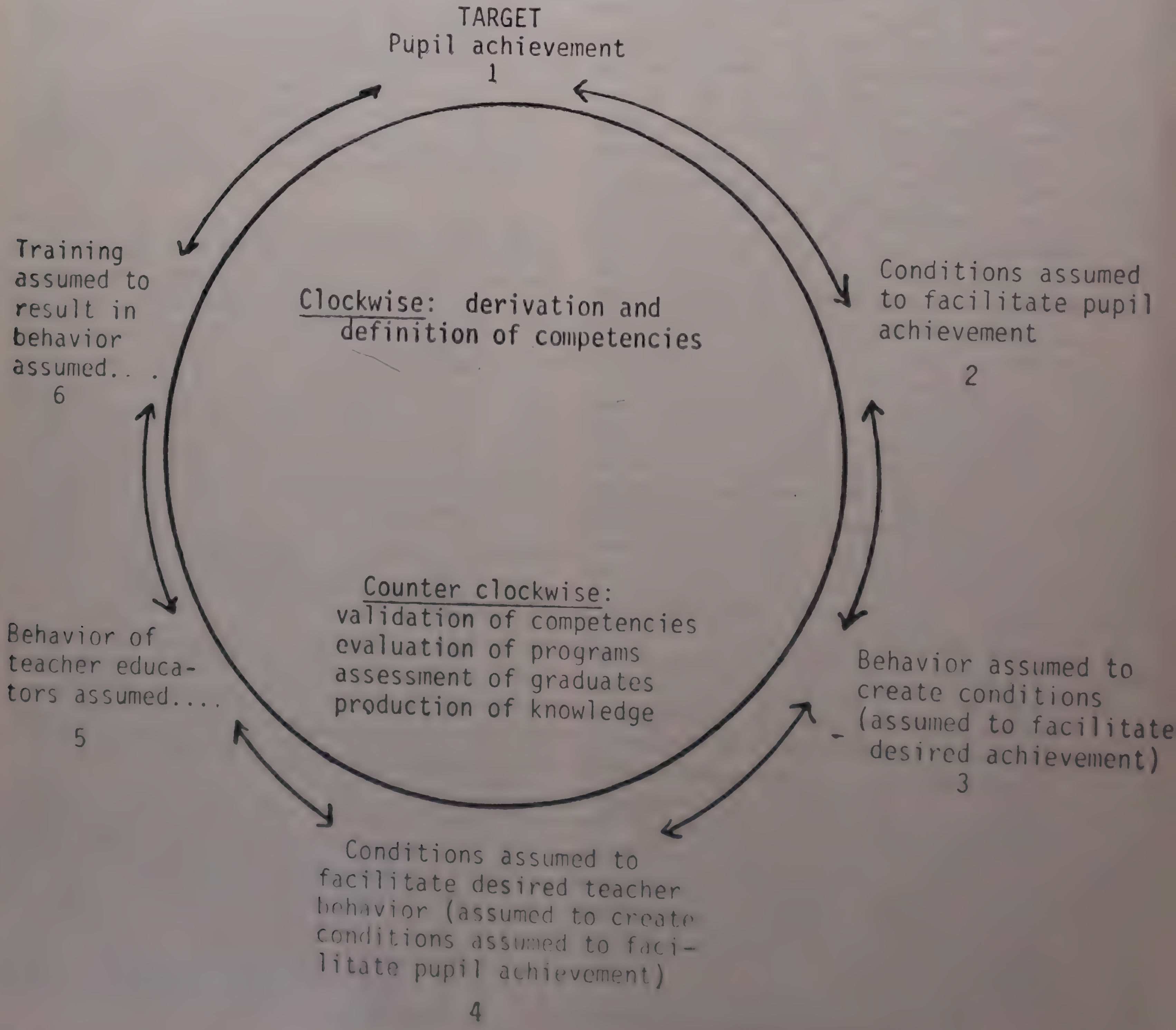
(c) assess the degree to which specific competencies have been achieved; and

(d) feedback into the entire system at all appropriate points the findings from assessment, so that the system is constantly open and characterized by self-renewal. A broad conception of this is indicated in Figure I (from the figure questions need to be asked about relationships from one through six and from six back to one. In every decision that is made in programme planning, in implementation, and in evaluation, assumptions are made at every stage around the circle. Those assumptions must be made explicit and subjecte to investigation. The future will look bright when more people do more serious and intensi study of these relationships and less argui about the inadequacy of the knowledge base).

Conclusion

If the curriculum for pre-service teachers could b based upon a thorough acquaintance with the wor that teachers will be called upon to do, and also th things which they should be able to do in order t improve the existing conditions, then prescription could be made in terms of providing bes preparation.

Fig. 1


TARGET
Pupil achievement
1
Conditions assumed
to facilitate pupil
achievement
2
Behavior assumed to
create conditions
(assumed to facilitate
desired achievement)
3
Conditions assumed to
facilitate desired teacher
behavior (assumed to create
conditions assumed to facilitate pupil achievement)
4
Behavior of
teacher educators assumed....
5
Training
assumed to
result in
behavior
assumed...
6
Clockwise: derivation and
definition of competencies
Counter clockwise:
validation of competencies
evaluation of programs
assessment of graduates
production of knowledge

THE COMMONWEALTH OF LEARNING

The Commonwealth of Learning is a new international organisation, established by Commonwealth Heads of Government in September 1988. Its function is to promote co-operation in distance education between Commonwealth countries and so to widen access to education. The purpose of the Commonwealth of Learning is to help Commonwealth countries to develop in a cost-effective way their facilities for distance learning in order to enhance educational opportunity as a means of advancing their social and economic development, particularly human resource development, and to strengthen their key institutions. The Commonwealth of Learning will work with and through colleges, universities and regional institutions in all parts of the Commonwealth, complementing and supporting their work.

What can it do ?

The Commonwealth of Learning will work in three ways.

First, it will promote, encourage and arrange the sharing of distance-teaching materials and support the development of new materials to meet common educational needs. Good distance education depends on good materials. If these can be shared, instead of developed anew for each new programme or at each institution, then resources can be shared and the quality of education improved.

Second, it will help to support distance-teaching institutions through staff training, through improved communications, through an information service about distance education, and through programmes of evaluation and research.

Third, it will help distance-teaching institutions to provide better services to students by facilitating the exchange of credit and, where possible, working with them to improve study-support systems.

There are two things it will not do. It will not enrol individual students; its function is to work with colleges and universities that can enrol students, and to enable these institutions to tap into each other's resources. And it will not concentrate all of its attention on highly sophisticated technology; the Commonwealth of Learning is as much interested in simple forms of technology including print as it is in advanced communication technology involving satellites and computers.

In its first year, as it builds up its staff, the Commonwealth of Learning can work only in a limited number of areas. These are likely to include work on the co-operative use of teaching materials in accountancy, the sciences, education, and rural development; the establishment of a Commonwealth-wide information service; and staff training in co-operation with partner institutions. But, while the start is modest, the long-term aim is bold; the group that drew up the first plans for the new institution looked forward to the day when any learner, anywhere in the Commonwealth, shall be able to study 'any distance-teaching programme available from any bonafide college or university in the Commonwealth'.

Where will it work ?

Through the generosity of the Canadian and British Columbia Governments the headquarters is in Vancouver. But much of the work of the Commonwealth of Learning will be decentralised. It will work closely with colleges and universities in all parts of the Commonwealth and will arrange for much of its work on the development of materials to be carried out under contract. Its information service will be based at the International Centre for Distance Learning, already established by the British Open University, and will be able to benefit from their experience. Work on maritime issues may be based at the University of Malta and so draw on their particular expertise.

The Commonwealth of Learning will also work regionally wherever it can. It hopes to work with the two regional universities, of the South Pacific and of the West Indies, and with other regional organisations. In due course, regional units may be established in other parts of the Commonwealth. At this stage India, Nigeria and the Southern African countries are likely to become centres for regional activities.

Who runs it and pays for it ?

The Commonwealth of Learning is governed by a Board representative of all regions of the Commonwealth. The Board consists of five members representing the governments that have pledged the largest contributions to its funds, at present Britain, Brunei, Darussalam, Canada, India and Nigeria; four other government representatives chosen on a geographical basis, at present Australia, Barbados, Malta and Zimbabwe; five individual members together with a Chairman, the Commonwealth Secretary-General and the President of the Commonwealth of Learning. The first Chairman is Lord Briggs of Lewes and the President is Dr. James A Maraj.

The Commonwealth of Learning has been launched with pledges of funds from Commonwealth governments amounting to some £ 15 million for its first five years. Beyond this, the new institution will seek funds from donor agencies of all kinds in order to finance individual projects and programmes.

Specific enquiries may be directed to the President Dr. James A. Maraj, 300-800 Hornby Street, Vancouver V6Z 2C5.

General background information on the origins of the Commonwealth of Learning is available in two publications :

Towards a Commonwealth of Learning (1987) : Price £ 6.00.

The Commonwealth of Learning : Institutional Arrangements for Commonwealth Co-operation in Distance Education (1988) : Price £ 5.00

Both are available from Commonwealth Secretariat Publications, Marlborough House, Pall Mall, London SW1Y 5HX.

Indian Institute of Advanced Study

RASHTRAPATI NIVAS, SHIMLA-171005

Advertisement No. 1/89

Applications are invited for the post of Secretary (Administration and Finance) for appointment in the Indian Institute of Advanced Study, Rashtrapati Nivas, Shimla, in the pay scale of Rs. 5900-200-6700 with allowances at the rates applicable to Central Government Officers of the corresponding grades stationed at Shimla.

Qualifications and Experience : Candidates should possess at least a High Second Class University degree of a recognised University; (ii) should have held the post of Director (Administration/Finance) or an equivalent post in a Government Department/Autonomous organisation/Educational Institutions or Registrar in the University for a period of 5 years; and (iii) should have adequate knowledge and working experience of establishment and financial rules.

Other Conditions of Service

Accommodation : Selected candidate will be provided accommodation in the campus of the Institute on payment of prescribed rent for building and furnishings. Alternatively, they will be allowed House Rent Allowance at the rates applicable to the Central Government employees stationed at Shimla.

Age limit : The maximum age limit will be 50 years but will be relaxable at the discretion of the Selection Committee.

Tenure : Selected candidate will be placed on probation for a period of two years in the first instance. In the case of persons employed in Government/Semi-Government organisation, they will be appointed on deputation terms for a period of two years in the first instance.

Selected candidate will be liable to serve in any part of India, where the Institute has an organisation.

Leave, Provideni Fund and Pensionary benefits : As per rules of the Institute.

Applications on plain paper containing full particulars of the candidate i.e. Name, date of birth, educational qualifications, experience, minimum salary acceptable etc., should, duly supported by attested testimonials, reach the Director of the Institute on or before **17th April, 1989**.

davp 903(2)88

'Analysis-Paralysis' Syndrome

"There is no point in producing semiconductors, when sati takes place in its backyard. There is no point in getting Ph. Ds when you still demand and passively acquiesce in the practice of dowry" said Shri Abid Hussain, Member, Planning Commission while delivering the Convocation Address at the Sixtieth Annual Convocation of the Andhra University, Waltair. But he cautioned the graduands against the 'Analysis-Paralysis' syndrome and exhorted them to "become harbingers of a resurgent India, an India rid of ugly prejudices of the past, an India where equality of opportunity prevails, an India where the egalitarian spirit has taken firm root and an India that does not pay homage or reverence just to age and status". Excertps

Convocation

Friends, apart from academic laurels that you carry from this University, one of the finest endowments that you will be taking along with you is the spirit of University life, a culture blending intellectual training with emotional richness which is the hallmark of an educated citizen. It is the spirit of intellectual enquiry that is formed in classrooms and libraries. It is physical vigour and vitality which you acquire in gymnasia and the playing field; it is a relentless search for new ideas and zest for innovation which you absorb in laboratories and research centres; and a feeling of a camaraderie and brotherhood emerges from living and working together. These are the elements which go to make you a complete human being. A good University not only turns out a person of practical wisdom but also endows one with those finer human qualities which endear him to others. The practical side of life, in fact, gains in strength and depth when it is fostered in an environment of grace. It is for nothing that the best scientists. technicians, innovators, philosophers, historians, men of commerce and business were the alumni of Universities where knowledge and scholarship are imparted in an environment of inquiry, intellectual generosity and openness of mind.

As young men and women, you have to spearhead a cultural renaissance. For economic growth and technological change in the absence of a renewal of our society, our values, our attitudes and customs and in our worldview is meaningless. There is no point in producing semiconductors, when sati takes place in its backyard. There is no point in getting Ph.Ds when you still demand, and passively acquiesce in the practice of dowry. We continue to be an extremely feudal, hierarchical and tradition-bound society. Paradoxically, the more formal education one acquires in this country, the deeper one is steeped in what is worst in our tradition; caste, class-consciousness, regional identifications. Strangely, even in the US, most of our countrymen often constitute Telugu, Gujarati or Tamil Associations, not Indian Associations.

A revolution of the mind is clearly called for. Old barriers have to be torn down. Feudalism has to be rolled back. In this day and age, a young educated man goes and gets crowned a 'Maharajah.' In this age and day, we still have conveniences that carry the legend 'for officers only.' You will thus have to think boldly for much of India is still in the Dark Ages. You have been the fortunate ones to be selected by the country for higher learning ; a poor society is investing substantially in the advanced education of its future elite. In return the society expects social, technological and managerial leadership; and I am sure it will not be disappointed in this aspiration. Bring about the age of Enlightenment in India which swept the Western World 400 years ago; question ceaselessly; be catalysts of reform. Take a leaf out of Gorbachev's book; become harbingers of a resurgent India, an India rid of the ugly prejudices of the past, an India where equality of opportunity prevails, an India where the egalitarian spirit has taken firm root and an India that does not pay homage or reverence just to age and status. The future is your canvas.

Do not just look for jobs; create them. You have it in you to be entrepreneurs, seize the opportunities presented by a thriving Indian economy creating niches for young men and women to fill. A new era has dawned; gone are the days of stagnation or slow growth, and the economy has shifted to a higher growth path which no amount of statistical circumspection can conceal. A new India is rising; a new dynamism is emerging; a new generation of entrepreneurs and innovators is coming into prominence. The time to strike out on your own is there. Innovate, Adapt, Develop. The economy can flourish only if we create productive Jobs by the million—jobs that are meaningful, tangible and add to the nation's wealth. This can come about only, however, if young minds like you are not averse to challenges to taking a dare; in short if you are averse to playing for safety. Entrepreneurial innovation should be the bedrock of an economy, not subsidies, protection and other such sops. Prove your mettle in the market place and be open and alive to contemporary advances. But do not rest content with being mere imitators. Improve on the original and show the world what Indian youth is capable of. Push further out the frontiers of technology, not just for technology's sake but for creating increasing growth, opportunities and for satisfying the basic needs of the Indian people. 'High tech' is important. But more pressing is the need to relate it to water management, literacy, nutrition, afforestation, sanitation and family planning. By all means, work on the latest and the best. But always try to relate to the socio-economic milieu in which we all work and live. Of course, you can always take the easy escape route out of the West. But that would be defeatist; instead, make for yourself a meaningful future here in your own land. There is so much to do in India and not many who are willing to do something. Don't just identify problems and suffer from the "analysis-paralysis" syndrome. Do something concrete to change conditions around you.

Be conscious of your roots and your origins. But self-knowledge should not become a nostalgic drug as it did for some of the earlier generations. Almost 90 years ago, Subramania Bharati had said that India may have many languages, but its spirit is one. Our motto thus should be Epluribus unum—out of many, one. This is the real challenge of nation building at a time when regional, sub-regional and other divisive forces are rearing their ugly heads and posing a threat to our social fabric. Fight this tendency amongst us to retreat into the shell of jatis, security of caste, or language. This will not be an easy task, but neither should we make it seem impossible. Nations are not built by those tied down to the security of the known and the tried. Past experience shows that material investment explains only a part of the observed growth. In fact, many societies have been unable to develop despite an abundance of finance. The recent experience of certain Third World countries is an apt illustration; though capital could be tapped abroad it had to be ignited to trigger a revolution. Many societies with similar development potential have developed very differently because of differences in their human capabilities. There are cases where G.N.P. has increased but human loves have shrivelled. A national consciousness and a national ethos has to be evolved without which it is impossible to translate the gains of economy into real development. Without a sense of elan and pride in the nation we cannot develop healthy stimulus of contacts with other more progressive nations, so essential for cross-fertilisation of knowledge and wisdom. And this can happen in the oddest of ways and places. Gandhi once said—think globally, act locally. How relevant all this is in our times : We have to move in step with the world, but in our own way.

There is no room for *prima donnas* in the nation building process. It demands orchestrated group action; collective wisdom rather than flashes of individual brilliance. And this is where we seem to have been wanting. We just cannot function as a team, submerging our individual egos in the interests of a larger common cause. Change this, for we are doomed if we do not set up systems that transcend individuals and personalities. Unlike what we were taught in the school sums on time and work, two Japanese working together may add up to three; but two Indians to only one half, or even less. Development is about functioning harmoniously, not about working at cross-purposes. May be our problems have something to do with our philosophy itself that perhaps stresses individual salvation excessively. Whatever the reason, it seems that we are our own enemies, failing miserably whenever mass mobilisation is needed. Cohesive and concerted action deployed purposefully to major goals, such then is the self discipline we should aim at. It may not be easy; but it is also the only way to progress in the world in which we live today.

As young professionals, you will be called upon and will take upon yourselves the responsibility of contributing to the growth of the country. You will, no doubt, be impatient and want to push the pace. This is needed; for too long, we have had a situation where growth has been frowned upon, and where social justice has only meant the equitable distribution of poverty. The philosophy is changing, even though, slowly, and people are beginning to appreciate the imperative of faster growth as a necessary solution to our fundamental socio-economic problems.

While I want you to be active

participants and contribute vigorously to be generation of growth impulses, it is equally important for you to be aware of the social environment in which material progress will take place. We need today a system, a humane and transparent system to distribute equitably the gains and pain of development. If this system is not in place, growth will have a destabilising impact on our social fabric upsetting the system which has kept this country going for so many centuries. Western countries were able to accomplish this task. More so Japan, where growth is seen to be yielding adequate, if not equal, return to all participants in the growth process; and where sufficient shock absorbers are in place to smoothen the adverse impact of progress on communities, people and regions. This is the true meaning of growth with equity, of development with social justice. We have, unfortunately, had neither high growth nor visible social justice. We must fight to change this, for our society cannot survive in a democratic framework, if the present inegalitarian pattern is allowed to intensify and perpetuate. We are already witnessing unrest in many parts of the country which has amply highlighted the glaring inequality in our society and the fact that large sections of our people are still outside the mainstream of the growth. Growth in itself will be meaningless, unless we pay the same attention to its composition and diffusion so that the entire society benefits. I must tell you that we are at present in the process of formulating the Eighth Five Year Plan. And this is precisely the current concern of planners. The need for higher growth is accepted; what is now needed is the fashioning of a social system in which growth is not confined to a restricted elite or few regions. In the final analysis, the goal of planning was best summed up by Gandhiji, namely, to wipe every tear from every eye. In this, we need the cooperation and assistance of every one because planning is, in essence, a participatory process and cannot succeed unless people themselves are enthused, motivated and mobilised in large numbers.

You are products of a great institution, of an institution that has had a glorious past and heritage. But your time spent in the portals of this University would be wasted if you do not question some of the very values that threaten to tear our society apart. Forces of linguistic chauvinism, forces of social backwardness are gaining strength. What pains me is that educated youth seem to be lending themselves to these forces. There is no greater shameful commentary on the sickness of Indian society today than the fact that an educated young man is willing to have his wife burnt for a few thousands of rupees of dowry. In this atmosphere of gloom, I see hope and the hope I see is the millions of young women who are asserting their rights, fighting for their identity and struggling to be recognised as equal partners in progress. The strength of mankind has always been its women and it is to this half of our population we must open up avenues of social change and social transformation. The levels of female literacy in some parts of the country are, unfortunately, still pathetically low and this is the single most important challenge confronting us in the years ahead. For it is said that if you educate a man, you educate an individual. If you educate a women, you educate the whole family and a whole generation. I hope you will appreciate the magnit ude of the challenges ahead us and take upon yourself the responsibility of spreading the benefits of education and of literacy to a larger number of disadvantaged and oppressed sections of our society. This will be true meaning of your education and training that you have received.

You are about to embark on an adventure in which, undoubtedly, you will have to look after your personal needs and concerns. Making a career and settling down would naturally be the top most priority. I cannot deny the need for you to see that you are settled quickly. But what I have pleaded so far is for you to have broader social conscience and perspective and not to get lost in the rat-race. Time is running out for India and it is perhaps the last opportunity for us to build a nation in a participatory, peaceful and democratic manner. It is on your generation that the future of India hinges. My generation has made a mess of things. It is upto you to salvage what is left and revive this great country of ours. I am sure each one of you has larger concerns and feels for the country and for the society. Do not let this feeling remain latent or hidden. Give full expression to it. Roosevelt used to say, there are generations from which much is demanded and there are generations to which much is given. From your generation much is demanded. □

National Institute of Educational Planning And Administration

17-B, Sri Aurobindo Marg, New Delhi-110016

Applications are invited for the following posts :

I. PROJECT POSTS

Project Fellow : One post—for a period of one year.

(Consolidated salary between Rs. 4700 to Rs. 5000 inclusive of House Rent Compensation of Rs. 800/- p.m. to be regulated as per rules) for the Project on Education in the year 2000.

Qualifications : Essential

(i) Should have consistently good academic record with first **OR** high second class (B+) Master's degree in Economics/Statistics/Mathematics or disciplines allied to Educational Planning and Administration of an Indian University **OR** an equivalent degree of a foreign University.

(ii) **Either** a doctorate degree of an Indian or foreign University. **OR** published research work of a high standard or outstanding academic contribution in educational planning/manpower planning.

(iii) At least five years' experience of teaching/conducting and/or guiding research in educational planning/manpower planning.

Desirable

Ph.D. in Economics/Statistics/Mathematics and experience of empirical research in allied areas of educational planning/manpower planning and computer applications.

Age : Below 45 years.

Project Assistants : Two posts—for a period of one year.

(Consolidated salary between Rs. 2200 to Rs. 2500 p.m. inclusive of House Rent Compensation of Rs. 450/- p.m. to be regulated as per rules).

Qualifications : Essential

(i) At least Second Class Master's degree in Economics/Statistics/Mathematics.

Desirable

(i) Three years experience of working in the quantitative techniques and its application in social sciences.

(ii) Ph.D./M.Phil. degree based on quantitative techniques.

Age : Below 30 years.

II. CADRE POSTS

Senior Technical Assistant—Two reserved posts (Rs. 1640-60-2600-EB-75-2900) One each for SC/ST.

Qualifications : Essential

(i) At least Second Class Master's degree in Education, Social Sciences or disciplines allied to Educational Planning and Administration.

Desirable

5 years' experience in report writing, collection, compilation and analysis of data/material relating to educational planning and administration.

Age : Below 30 years.

Hindi Translator—One post (Rs. 1400-40-1800-EB-50-2300)

Qualifications : Essential

(i) A Master's degree of recognised university in Hindi/English with English/Hindi as main subject at degree level **OR** a Master's degree with Hindi and English as main subjects, and recognised diploma certificate in translation from English into Hindi and vice-versa.

(ii) At least 2 years experience in translation from English to Hindi and vice-versa in a Government/private organisation.

Desirable

(i) Knowledge of Indian Educational system.

(ii) Proof reading.

Age : Below 30 years.

Cadre posts carry usual allowances as are admissible under the Central Government rules.

Qualifications and age are relaxable for otherwise well qualified candidates. Candidates from outside Delhi called for interview will be paid single return train second class fare by shortest route. Candidates already in employment in Government/Semi-Government Departments/Autonomous Bodies should send their applications through proper channel.

Other things being equal, preference will be given to SC/ST candidates.

Applications (separate for each post) must be submitted in prescribed form obtainable personally or by sending a self-addressed envelope (size 23 x 11 cms.) with postal stamps worth Re. 1/- affixed thereon. Complete application **clearly specifying the post alongwith** attested copies of certificates, a recent passport size photograph and a non-refundable crossed postal order of Rs. 8/- (no postal order is required in the case of Scheduled Castes/Scheduled Tribes candidates) drawn in favour of Registrar, NIEPA, 17-B, Sri Aurobindo Marg, New Delhi-110016, should reach the undersigned latest by **10th April, 1989**.

R P. Saxena
REGISTRAR

Seminar on Student Support Services

The Andhra Pradesh Open University recently organised a four-day National Seminar on "Methodologies for the Student Support Services in Open University System" at Hyderabad. Sponsored by University Grants Commission (UGC), the seminar was attended by about 75 participants, mostly from Open Universities in different parts of the country and educational administrators.

Mr. P.K. Doraiswamy, IAS, Principal Secretary to Government of Andhra Pradesh, Department of Education, inaugurated the seminar and Prof. C. Narayana Reddy, Vice-Chancellor, presided over the function. In his inaugural address, Mr. Doraiswamy urged the Open Universities to help the under-privileged sections of the society. He said that open system of education could effectively solve a number of problems faced under formal system of education by giving importance to values. He called upon the open universities to convert themselves into consumer-oriented organisations, by conducting consumer profiles and social marketing.

Mr. Doraiswamy emphasised that importance should be given to five P's for the courses offered by the University. The five P's are Price, Package, Publicity, Product and Place.

Prof. C. Narayana Reddy, in his presidential address said that the University would soon start Ph. D. Programme in English, Telugu, Political Science, Public Administration, Economics, History, Commerce, Business Management and Mathematics. It is proposed to recognise some reputed academic research oriented institutions like Centre for Economic & Social Studies (CESS) for this purpose, he added.

The Vice-Chancellor observed that the open system of education was well suited for Science Courses also. A large number of employees in industrial and scientific departments and organisations had benefited from B.Sc. courses offered by the University. He said that more Study Centres in various parts of the State would soon be opened.

Prof. G. Ram Reddy, Vice-Chancellor, Indira Gandhi National Open University, who was the chief guest at the valedictory function, stressed the need for adopting appropriate methodologies for the Open University System. He said that the study centres constituted an important element in the open system of education. Prof. Ram Reddy pointed out that Open University results were encouraging wherever the study centres were strong. He said that Indira Gandhi National Open University (IGNOU) was planning to open four regional science laboratories in the country at an estimated cost of Rs. 8 crores which would benefit the science students of the Open Universities of the country.

The seminar emphasised the importance of developing appropriate methodologies for student support services, keeping in view the socio-economic conditions and the educational history of the country. The print media have to be used more effectively to ensure two-way communication between the learner and the institution. Low-cost equipment may have to be developed to overcome the resource constraints in meeting the learners needs. The need for flexible administrative structures, to suit the requirements of the unstructured learning process was also emphasised.

Institute of Remote Sensing

Prof. Yash Pal, Chairman, University Grants Commission, recently inaugurated the Institute of Remote Sensing (IRS) established by the Anna University, Madras. Recognised by the Govt. of India as National Sub-Centre for Remote Sensing activities, the objectives of the Institute are academic and extension services. The input assets of the Institute, in the form of sophisticated Image processing, Photogrammetry, cartographic and Ground truth equipment, remotely sensed Aerial and Satellite data products are housed in a centrally Air-conditioned building at a cost of about Rs. 75 million. The chief instruments, *inter-alia*, worth mentioning here are the VAX-11/780, procured under State Government funds, Planicomp and Orthocomp donated by the Federal Republic of Germany (FRG). The Institute is associated with a number of centrally and State-sponsored Pilot projects such as National Wasteland Mapping Project, Technology Mission Project on drinking water, site selection for water harvesting structures in drought prone areas, etc.

As many as 28 short term training programmes have so far been conducted for the benefit of 300 Officers of State/Central Governments. Sixty six Postgraduate degrees (M. Tech. Remote Sensing) have been awarded since 1983.

Symposium on Molecular Biology

The Institute of Medical Sciences, Banaras Hindu University organised a symposium on Molecular Biology under its Special Assistance Programme. During the symposium special lectures were delivered on the topics : (1)

Use of BKM in probing molecular organisation and function of Sex Determining Chromosome; (2) De novo protein design : Approaches to the construction of synthetic protein mimic; (3) Is there any role of membrane associated Cytoskeleton in controlling the transbilayer Phosfolypie organisation in plasma Membranes; (4) Current status of the Molecular biology of vibrio cholerae; (5) Molecular basis of host-virus interaction; and (6) Growth and form in Biology and Metallurgy.

In his valedictory address Prof. M.G.K. Menon, Member, Planning Commission and Scientific Advisor to the Prime Minister, called for linkages between Education, Industry and its application. Prof. Menon also suggested introduction of interactive system between various disciplines of science and among the scientific community.

Refresher Course in Statistics

The Indian Statistical Institute, Calcutta, will organize a UGC-sponsored Refresher Course in Statistics from June 12-30, 1989. Teachers from Indian universities and colleges which are within the purview of the UGC are eligible for admission to the Refresher Course. The training will mainly consist of exposition of basic concepts and development of study material with a special emphasis on the mode of teaching. Tentatively, the following areas are proposed to be covered : (a) Probability Theory, (b) Statistical Inference and Distributions, (c) Computation Techniques and Applications.

Further details can be obtained from the Course - Coordinator, UGC Sponsored Refresher Course in Statistics, Division of Theoretical Statistics & Mathematics, Indian Statistical Institute, 203 Barrackpore Trunk Road, Calcutta-700 035. The last date of receipt of applications is April 10, 1989.

Educational Consultants Consortium

Educational Consultants Consortium (ECC), a cooperative venture of eminent educationists, is a voluntary, non-profit organisation, that renders educational information and consultancy services to students, educational institutions, government, national and international agencies. The consultancy services rendered by the ECC cover (i) Professional training; (ii) Technology transfer; (iii) Students placement; (iv) Manpower training; (v) Turn-key projects; (vi) Research and Development; (vii) Evaluation studies; (viii) Surveys and leasbilities studies; (ix) Secondment of teaching personnel; (x) Textbooks and supplementary materials, etc.

The Govt. of India in the Ministry of Human Resource Development has approved ECC as an external agency for evaluation and has provided a grant of Rs. 150 lakhs for undertaking evaluation of Adult Education Programme in the Union Territory of Delhi. The UNDP has also selected EEC for arranging training programmes in India for UNDP fellowship holders.

Further details can be obtained from the Chief Consultant, Educational Consultants Consortium, CF 4, Sona Industrial Estate, 389, G.T. Karnal Road, Delhi-110033.

Call for a Conservation Society

Dr. M.S. Swaminathan, a renowned agricultural scientist recently delivered 'Dr. Salim Ali Memorial Lecture' under the auspices of the Centre of Wildlife and Ornithology at Aligarh Muslim University. In his address, Dr. Swaminathan underlined the need for transforming agricultural and industrial society into a conservation society and cautioned against lopsided development, neglecting the importance of maintaining natural ecological balance. He acknowledged that the present day awareness of environmental problems and the importance of conserving India's wildlife is the outcome of the Late Dr. Salim Ali's enlightened and missionary efforts.

In his welcome address, Dr. A.H. Musavi, Chairman of the Centre, lauded the extraordinary achievements of Dr. Swaminathan in the service of mankind, by furthering the cause of science and natural conservation. He said that the Centre of Wildlife and Ornithology was the first institution of its type in the Indian University System.

AMU Vice-Chancellor, Syed Hashim Ali, presided over the function.

Students and College Autonomy

An orientation programme on College Autonomy for student representatives of autonomous colleges was recently organised by the Shri Durga Prasad College of Arts and Applied Sciences, Shreeramnagar, A. P. The objectives of the programmes were : to discuss the concept and philosophy of Autonomous Colleges; role of students; to acquaint the participants with the evaluation and accountability techniques under autonomy; to identify the critical issues and problems faced by students of autonomous colleges and to find workable solutions for effective implementation of autonomous colleges scheme; and to provide an opportunity to learn from each other's experience.

Thirtyfour student representatives and five teachers from five of the autonomous colleges of Andhra University attended the programme.

The participants were divided into five groups to discuss the following aspects, assisted by one teacher-participant as counsellor :

(1) Subject-orinted Field Work,
(2) Creative Activities,
(3) Counselling and Guidance,
(4) Examinations, and
(5) Women and Autonomy.

Lectures were also delivered and the themes chosen included: Autonomy vis-a-vis New Education Policy; Motivation of Students, leadership styles, Guidance and Counselling; Participation in creative activities (Co-curricular and extra-curricular) with the learning process; Examination Reforms and Semester System; Techniques of evaluation of the teachers and the institution by the students; Planning the process of learning with innovations in teaching and Audio Visual Aids; Role of Library as a source of information and knowledge; Role of Student Representatives on the academic bodies of Autonomous Colleges; and Human Resource Development and unemployment.

News from Agril. Varsities

Biological Control of Pests, Diseases & Weeds

The Government of India have formed a High Level Task Force with Dr. S. Jayaraj, Vice-Chancellor, Tamil Nadu Agricultural University (TNAU) as Chairman to make recommendations for research and development on biological control for the whole country in order to develop sound integrated pest management strategies with emphasis on biological control and to reduce the over dependence on pesticides in the country.

The Task Force met at the Tamil Nadu Agricultural University, Coimbatore in late December last year to identify pests, diseases and weeds of crop plants of national importance for intensification of research and development involving biotechnology on the use of microbial pathogens for their control. The task force has recommended the establishment of four lead centres of microbial control to represent the North, West, East and South Zones of India. For the effective functioning of the centres, several sub-centres involving agricultural universities, ICAR Institutes and general universities will be established. This network will have time-bound programmes with definite objectives of demonstration in farmer's fields and to establish pilot plants for mass production of selected microbial pathogens. Wherever necessary linkages will be established with Medical and Veterinary institutes to establish safety of newer pathogens to higher animals.

Tree Germ Plasm Bank

India's first tree germ plasm bank is reported to have been established in the Haryana Agricultural University (HAU) at Hisar to check the loss of forests and preserve the existing varieties of various species. According to Dr. Har Swarup Singh, Vice-Chancellor of the university, the work has already commenced and about 1,000 species have been procured. The tree germ plasm bank, spreading over an area of 100 acres, would have about 4,000 multi-purpose species of shrubs and trees.

News from UGC

INSAT-1B Programme of UGC

Between 1st April to 7th April, 1989 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV Network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

1.4.89

"Interior Decoration—II : Design"
"Indian Stick Fighting—I"
"Ambassadors of Culture"

2.4.89

No Telecast

3.4.89

"Classical Mechanics—I Galileo's Principle of Relativity—A"

"Poverty in India"

"The Fight Against Hunger-Farming & Ecology—II"

4.4.89

"Educational Technology—The Teleteacher—I"

"Food Preservation—I"

"Influenza Virus—Vaccine Manufacture & Control"

5.4.89

"Minimum Standard for Rural Housing"

"In Search of the Past—South America—The Empire of the INCA"

"Fun With Fins"

6.4.89

"Introduction to Computer—I"

"Rivers"

"The Story of Writing—The Chinese Writing System—I"

7.4.89

"Story of Our Universe—I"

"Election Campaign in the USA—I"

"Waste Disposal"

Higher Allowance to Teacher Fellows

The University Grants Commission (UGC) is implementing a Faculty Improvement Programme under which college teachers are deputed by the colleges to enroll themselves at various universities for M.Phil. and Ph.D. programmes. The allocations of number of teacher fellow positions are linked with the overall ceiling of the development grant assigned to the college in accordance with the guidelines meant for it from plan to plan. The UGC has recently revised the fellowship amounts for Junior Research Fellows and the contingency grants for them. The UGC has now taken a decision that the existing teacher fellows eligible to receive a living allowance will be provided Rs. 750/- p.m. as against the existing Rs. 500/- p.m. with effect from Ist April, 1987. The contingency grant for teacher fellows has been brought at par with that for Junior Research Fellows i.e. Rs. 5000/- p.a. for Social Sciences/Humanities and Rs. 7500/- p.a. for Sciences with effect from 1st April, 1989.

The teacher fellows will continue to draw their full salary and allowances as college teachers, as also the benefit of revision of pay scales with effect from 1.1.1986 as per Govt. of India scheme on revised pay scales. The present basic pay of Rs. 700-1600 for lecturers has been revised with effect from 1.1.1986 to Rs. 2200-4000, Rs. 3000-5000, and Rs. 3700-5700 under the Career Advancement Scheme. It is also envisaged that on acquiring research degrees like M.Phil. or Ph.D. they would get a benefit of one and three years respectively in counting the total length of service for placement in higher pay scales.

AIU News

Doctorate for Sivia

The thesis, "Social Aspects of Sports in India" submitted by Shri G.S. Sivia, Joint Secretary, Association of Indian Universities to the Marathwada University for Ph.D. degree in Sociology has been accepted by the University and Shri Sivia has been declared eligible for the award of the degree. Shri Sivia prosecuted his research under the guidance of Dr. (Mrs.) S.V. Kaldate, Prof. and Head, Department of Sociology, Marathwada University, Aurangabad.

Shri G.S. Sivia

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertation as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

CURRENT DOCUMENTATION IN EDUCATION

A List of Select Articles Culled from Periodicals Received in the AIU Library during February, 1989

EDUCATIONAL PHILOSOPHY

Irele, Abiola. Education and access to modern knowledge, *Daedalus* 118(1), 1989, 125-40.

Neave, Guy. Education and social policy : Demise of an ethic or change of values ? *Oxford Rev. Edn.* 14(3), 1988, 273-83.

EDUCATIONAL PSYCHOLOGY

Boreham, N.C. Models of diagnosis and their implications for adult professional education. *Studies Edn. Adults* 20(2), 1988, 95-108.

Lehwald, Gerhard. A new way in describing the quest for knowledge. *Intl J. Ednl. Res.* 12(3), 1988, 235-41.

Rheinberg, Falko. Motivation and learning activities : How research could proceed. *Intl. J. Ednl. Res.* 12(3), 1988, 299-306.

EDUCATIONAL SOCIOLOGY

Fall, Mouhamadou M. Students abroad : One of the new priorities of the international student movement. *World Student News* 42(5-6), 1988, 12.

Schwarzer, Ralf and Leppin, Anja. Social support : The many faces of helpful social interactions. *Intl. J. Ednl. Res.* 12(3), 1988, 333-45.

THE WORLD In Europe : Foreign students in the countries of the Europe Region : Basic statistical data. *World Student News* 42(5-6), 1988, 8-11.

EDUCATIONAL PLANNING

Bacharach, Samuel B. Four themes of reform : An editorial essay. *Ednl, Admn. Q.* 23(4), 1988, 484-96.

Shatrugna, M. Privatising higher education. *EPW* 23(50), 1988, 2624, 26.

EDUCATIONAL ADMINISTRATION

Bottery, M. P. Educational management : An ethical critique. *Oxford Rev. Edn.* 14(3), 1988, 341-51.

Dometrius, Nelson C. and Sigelman Lee. Assessing personnel practices in higher education : A cautionary note. *Eco. Edn. Rev.* 7(4), 1988, 439-43.

Selvaratnam, Viswanathan. Student mobility within the Commonwealth : growing constraints, new initiatives. *Hr. End. Q.* 42(3), 1988, 253-71.

Veres, John G. Managing a modern university research centre. *New Directions Higher Learning* (63), 1988, 61-72.

CURRICULUM

Grogan, William R and others. Liberal learning in engineering education : The WPI experience. *New Directions Teaching Learning* (35), 1988, 21-37.

Thomas, Keith. The past in clearer light, a beacon on our future. *THES* (839), 1988, p-13, 16.

TEACHERS & TEACHING

Gaya, Tushar Kanta. Instructional system and its design. *J Indian Edn* 14(1), 1988, 11-16.

Lacey, Paul A. Faculty development and the future of college teaching. *New Directions Teaching Learning* (33), 1988, 57-69.

EDUCATIONAL TECHNOLOGY

Bussmann, Hans and Heymann, Hans Werner. The computer and general education. *Education* (38), 1988, 69-83.

Goodwin, Leonard. Long term effects of an innovation in computer science instruction. *Computers & Edn* 13(1), 1989, 61-7.

EDUCATIONAL EVALUATION

Ananda, A.L. and others. Design of an intelligent on-line examination system. *Computers & Edn* 13(1), 1989, 45-52.

Conner, Ross F. Structuring knowledge production activities to facilitate knowledge utilization : Thoughts on important utilization issues. *Studies Ednl Eval* 14(3), 1988, 273-83.

Glasman, Naftaly S. and Glasman, Lynette Diamond. Educational Reform and evaluation. *Ednl Admn Q* 24(4), 1988, 438-45.

King, Jean A. Research on evaluation use and its implications for evaluation research and practice. *Studies Ednl Eval* 14(3), 1988, 285-99.

Payne, David A. How I learned to love "The Standards". *Eval Practice* 9(3), 1988, 35-42.

Seldin, Peter. Evaluating college teaching. *New Directions Teaching Learning* (33), 1988, 47-56.

ECONOMICS OF EDUCATION

Abraham, Alex. This brain-drain must stop. *Yojana* 32(21), 1988, 4-5, 21.

Camp, Robert C and others. The finite increment faculty merit pay allocation model. *J Hr Edn* 59(6), 1988, 652-67.

VOCATIONAL EDUCATION

Garg, V.P. Vocationalization of education at the plus two stage. *J Indian Edn* 14(2), 1988, 26-31.

ADULT EDUCATION

Hawkins, John N. The transformation of education for rural development in China. *Comp. Edn. Rev.* 32(3), 1988, 266-81.

Panda, Santosh K. and Sarangi, Harihar. Universities and adult education research. *Indian J Adult Edn* 49(3), 1988, 45-50.

Pankajam, G. Role and functions of college teachers and students in adult and continuing education programmes. *Indian J Adult Edn* 49(3), 1988, 63-72.

Wenging, Zhao. Literacy and post-literacy adult education. *New Directions Continuing Edn* (37), 1988, 15-21.

DISTANCE EDUCATION

Foggo, Tom. The introduction of open learning as a change process. *Open Learning* 3(3), 1988, 53-6.

Keming, Gao. Distance education. *New Directions Continuing Edn* (37), 1988, 91-7.

Sachchidananda. Quality of life and distance education. *IASSI Qtly Bulletin* 7(1), 1988, 9-14,

COMPARATIVE EDUCATION AND COUNTRY STUDIES

Igarashi, Koichi. Recent trends in educational reform in Japan. *Intl J Edn Res* 12(2), 1988, 109-14.

Khanna, C.P. Education in India : Trends and development. *Aryan Heritage* V(54), 1988, 5-9.

Mitter, Wolfgang. Educational reforms in the Federal Republic of Germany. *Intl J Ednl Res* 12(2), 1988, 137-43.

Teese, Richard. Australian education in cross-national perspective : A comparative analysis with France. *Comp Edn* 24(3), 1988, 305-316.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

BIOLOGICAL SCIENCES

Biology

1. Laxma Reddy, G. *Synthetic and physico-chemical studies on the role of signal sequences in the intracellular sorting of proteins.* JNU. Prof. R. Nagaraj, Centre for Cellular and Molecular Biology, Jawaharlal Nehru University, New Delhi.

2. Singh, Elangbam Jadu. *Photosociology, primary productivity and nutrient cycling at Shiroy Hills, Manipur.* Manipur. Dr. P.S. Yadava, Assoc. Prof., Department of Life Sciences. Manipur University, Imphal.

Biochemistry

1. Borthakur, Alip. *Studies on lipoxygenases in legume seeds.* Mysore. Dr. C.S. Ramadoss, Scientist, Biochemistry Section, Department of Food Chemistry, Central Food Technological Research Institute, Mysore.

2. Jayasankara Prasada Rao, Ummiti. *Studies on wheat flour proteins : Gliadin and glutenin.* Mysore. Dr. S. N.

Nigam, Scientist, Department of Food Chemistry, Central Food Technological Research Institute, Mysore.

3. Lalitha, T. *Studies on the interaction of maternal alcohol consumption and protein deficiency on the rat CNS lipids*. Baroda.

4. Madhusudhana Rao, N. *Studies on physical parameters that influence membrane function : Osmotic pressure as a physical probe*. Osmania.

5. Panda, Sunakar. *Aging induced changes in membrane lipid peroxidation and stability of cell free chloroplasts*. Sambalpur. Dr. A.K. Mishra, Department of Chemistry, Sambalpur University, Jyoti Vihar, Burla.

6. Paul Hyacinth, K.J. *Biochemical studies on the formation of urinary calculi*. Kerala. Dr. S. Krishnamurthy, Prof., Department of Biochemistry, Kasturba Medical College, Mangalore.

7. Satya Prasad, V. *Studies on human skeletal development in normal and growth retarded fetuses and in the children from the endemic fluorosis area*. Baroda.

8. Sushama Kumari, S. *Biochemical changes in myocardial infarction in experimental animals*. Kerala. Dr. Venugopal P. Menon, Reader, Department of Biochemistry, University of Kerala, Trivandrum.

9. Vasantha Rao, P. *Biochemical changes in riboflavin deficient rat lens and their relation to lens opacity*. Osmania.

Microbiology

1. Deshmukh, Arvind Madhavrao. *Studies on soil Actinomycetes of Karad Taluka*. Shivaji. Dr. S.H. Godbole, Krishna, 8 Baner Park, Baner, Pune.

2. Naghi, Taher Talatapeh. *Immunochemical characterization of metabolic key enzymes amongst the bacterial species of Enterobacteriaceae with a special reference to their bioenergetic systems*, Shivaji. Dr. S.R. Sengupta, Haffkine Institute for Training Research and Testing, Bombay.

3. Vijay Prabha. *Significance of microbial biotransformations of bile acids in pathogenesis*. Panjab.

4. Vyas, Rajababu Shivjanardanprasad Vasantray. *Studies on microbial control of insect pests of crops with special reference to white grub*. Patel. Dr. R.J. Patel, Prof., Department of Biosciences, Sardar Patel University, Vallabh Vidyanagar.

Botany

1. Ahmed, Vasir. *A study of the trichome structure and its taxonomic significance in the family Scrophulariaceae*. Bundelkhand. Dr. D.P. Mishra, Department of Botany, Bipin Bihari College, Jhansi.

2. Anuradha, S,M.J. *Chemotaxonomy of some papilionoid and mimosoid legumes*. Osmania.

3. Chand Basha, S. *Studies on the ecology of evergreen forests of Kerala with special reference to silent Valley and Attappady (South India)*. Kerala, Prof. C.A. Ninan, Head, Department of Botany, Kerala University, Kariavattom.

4. Devendra Kumar. *Studies on the bio-active constituents of some Indian medicinal plants*. HS Gour. Dr. D.K. Mukharya, Reader, Department of Criminology and Forensic Sciences, Dr. Hari Singh Gour Vishwavidyalaya, Sagar and Dr. P.C. Maiti, Consultant, Institute of Criminology and Forensic Sciences, 4E, Jhandewalan Extn., Rani Jhansi Road, New Delhi.

5. Dubey, Sunil Chandra. *Studies on web blight of roundnut caused by Thanatephorus cucumeris (Frank) Donk*. CSAT, Kanpur. Dr. R.P. Dwivedi,

6. Gandotra, Sudha. *Studies on keratinophilic fungi isolated from soils of Delhi*. Delhi.

7. Krishna Reddy, R. *Genetic improvement of urd (Vigna-mungo (L) Hep per)*. Durgawati. Dr. C.B. Singh, Prof. and Head, Department of Plant Breeding, Jawaharlal Nehru Krishi Vishwavidyalaya, Jabalpur and Dr. D.P. Tiwari, Prof. and Head, Department of Botany, Government Science College, Jabalpur.

8. Krishna Reddy, V. *Studies on mycotoxin producing fungi associated with maize, Zea mays Linn.* Kakatiya. Dr. S.M. Reddy, Reader, Department of Botany, Kakatiya University, Warangal.

9. Maikhuri, Kakesh Kumar. *Studies on tribal village ecosystem function in North Eastern Hill Region of India.* NEHU. Prof. P.S. Ramakrishnan, School of Environmental Sciences, Jawaharlal Nehru University, New Delhi.

10. Mehta, Hina. *Biology of certain soil borne plant pathogens under polluted environment*. Vikram. Dr. S.K. Chauhan, Vice Chancellor, Vikram University, Ujjain.

11. Mishra, Shambhu Prasad. *Studies on slow mildewing in pea against powdery mildew (Erysiphy polygoni D.C.)*. Awadhesh. Dr. Hakim Singh, Department of Botany, Government Sanjay Gandhi Memorial College, Sidhi, Madhya Pradesh.

12. Murugan, V. *Studies in the laticifers of some dicotyledons*. Patel. Dr. J.A. Inamdar, Prof. and Head, Department of Biosciences, Sardar Patel University, Vallabh Vidyanagar.

13. Parihar, Suman Kumari. *Cytogenetical studies in Pennisetum rich species*. Bundelkhand. Dr. V.M. Tripathi, Scientist, Indian Grassland and Fodder Research Institute, Jhansi.

14. Rajarathinam, K. *Some invitro and in vivo physiological studies on Azolla Pinnata R. Br.* Baroda.

15. Sadiq, Yasmin. *Studies on the role of phenolic compounds in disease resistance in plants with special reference to betelvine, Phytophthora*. HS Gour. Prof. K.M. Vyas, Head, Department of Botany, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

16. Satya Pal Singh. *Physiological studies on growth, development and productivity in mustard (Brassica juncea L. Czern and Coss)*. CSAT, Kanpur. Dr. O.N. Mehrotra.

17. Simon, Aleyamma. *Cytological and morphological effects induced by physical and chemical mutagens in sunflower (Helianthus annuus L)*, Kerala. Dr. C.A. Ninan, Prof. and Head, Department of Botany, University of Kerala, Kariavattom.

18. Singh, Indra Rao. *Morphophysiological evaluation of some cultivars of potato, Solanum tuberosum L.* Rohilkhand. Dr. V.K. Bhatnagar, Hindu College, Moradabad.

19. Surinder Singh. *Studies on polyporoid fungi of Eastern Himalayas and adjoining hills*. Panjab.

20. Tandon, Alka. *Studies on population dynamics and distribution pattern of microfungi in soil with special reference to Fusaria*. Rohilkhand. Dr. V.K. Tiwari, Hindu College, Moradabad.

21. Tomar, Subhash Babu. *Cytogenetic studies of certain induced mutants in barley, Hordeum vulgare L.* Rohilkhand. Dr. A.P. Shamshery, Hindu College, Moradabad.

22. Varma, Bharati. *Histochemical studies in Arachis hypogaea Linn. CV. M-13, Cyamopsis tetragonoloba Linn. Cv. shared bahar and Pisum sativum Linn. Cv. bonneville : Egg to seedling.* Delhi.

Zoology

1. Andrew, Raymond Joseph. *Studies on the developmental changes in the neuroendocrine system, reproductive organs and haemolymph inter mediury metabolites in the last instar nymph-adult, dragonfly, Tramea virginia (Rambur) (Anisoptera : Odonata).* Nagpur. V.K. Thakare, Department of Zoology, Nagpur University, Nagpur.

2. Chandrashekarappa, S. *Studies on the reproductive physiology of the freshwater catfish, Clarias batrachus (Linn) : Role of the gonadotrophic and gonadal hormones.* Mangalore. Dr. A. Krishna Rao, Prof., Department of Physiology, Kasturba Medical College, Manipal.

3. Chatterjee, Chinmoy. *Quantitative changes of some biochemical parameters during postembryonic development of a stored grain pest, Alphitobius piceus Oliver (Tenebrionidae : Coleoptera : Insecta).* Burdwan. Prof. Subrata Ray, Department of Zoology, University of Burdwan, Burdwan.

4. Chaudhary, Maya Vasant. *Effect of pesticide contamination of fresh water ecosystem on Rasboro Daniconius (Ham),* Amravati. Dr. K.M. Kulkarni, Department of Zoology, Govt, Vidarbha Mahavidyalaya, Amravati.

5. Das, Sumita. *Studies on systematics of Rotifera and Cladocera of North Eastern India, with biology of selected cladoceran species.* Calcutta.

6. Donde, Mrunalini. *Histochemical and histoenzymological studies on the Acanthocephala parasite (Moniliformis dubius) parasitic in the house rat, Rattus rattus rufescens.* Osmania.

7. Godbole, Anuradha Deepak. *Studies on the histomorphology and physiology of the gastro intestinal tract with associated circadian rhythms in some mammals.* Nagpur. Dr. (Mrs) S.A. Bhide, Department of Zoology, Institute of Science, Nagpur.

8. Gowda, Puttaswamy. *Studies on some aspects of egg production in silkworm, Bombyx mori L in tropics.* Mysore. Dr. Manjeet S. Jolly, Director (Retd), No. 66. 'Pallavi', 6th Stage, T.K. Layout, Mysore.

9. Jacob, Jose P. *Combined toxic effects of oil and pesticides on selected marine Invertabrates.* CUST. Dr. N. Ravindranatha Menon, Prof, and Head, Division of Marine Biology, Micro Biology and Biochemistry, School of Marine Sciences, Cochin University of Science and Technology, Cochin.

10. Majumdar, Subeer Suhash. *Studies on seasonal variation in reproductive performance and related events in monkey (male) (Macaca radiata).* Nagpur. Prof. Somnath Roy and Dr. R.P. Das, National Institute of Health and Family Welfare, New Delhi.

11. Mukhopadhyay, Deba Prasad. *Some biochemical studies on Ascaris lumbricoides with a note on the effect of some drugs on its metabolic processes.* Burdwan. Prof. Giridhari Majumdar, Department of Zoology, University of Burdwan, Burdwan and Prof. C.R. Maity, Department of Biochemistry, Burdwan Medical College, Burdwan.

12. Nadar, Thiraviaraj Subramaniam. *Studies of glands of Burnner in the experimentally induced duodenal ulcer in albino rats.* Shivaji. Dr. (Smt) M.M. Pillai, Department of Zoology, Shivaji University, Kolhapur.

13. Nanda, Nutan. *Studies on ultrastructure and development of human malaria parasite Plasmodium vivax (Grassi and Feletti, 1890).* Delhi.

14. Padma Latha, C. *Studies on ecology and biology of Pentalonia nigromervosa,* Kerala. Dr. N.R. Prabhoo, Prof., Department of Zoology, University of Kerala, Kariavattom.

15. Prem Lata. *The taxonomic studies of some North Indian Tephritidae (Diptera).* Panjab.

16. Rastogi, V. S. *Antifertility effect of uterine anastomosis (I.U.D.) and ovarian hormones in albino rats with special reference to uterine mast cells,* Barkatullah. Dr. S P. Norton, Asstt. Prof., Department of Zoology, M.V.M., Bhopal.

17. Sarkar, Bharati. *Studies on aging in the hypotrichous ciliate, Stylonychia lemanae (Ammermann and Schlegel, 1983).* Delhi.

18. Srivastava, Santosh Kumar. *Studies on population dynamics and control of white grub in Uttar Pradesh.* CSAT, Kanpur. Dr. A.S Srivastava.

19. Vijaya Bhaskar Reddy, B. *Some aspects on the hormonal regulation of testicular function in rat.* Hyderabad. Prof. P.R.K. Reddy, School of Life Sciences, University of Hyderabad, Hyderabad.

Medical Sciences

1. Balasundaram, David. *Regulation and functions of polyamines in mycobacteria.* Delhi.

2. Bhat, K. Shankara. *Effect of drugs and other measures an seminogram in humans.* Nagpur. Dr. K.N. Ingley, M.G. Institute of Medical Sciences, Sewagram.

3. Deb, Ajay Kumar. *Drug-erythrocyte interaction : A study on chloroquine uptake by goat and human erythrocytes.* Nagpur. Prof. A.K. Dorle, and Dr. A.V. Kasture, Department of Pharmaceutical Sciences, Nagpar University, Nagpur.

4. Deo, Manohar Gajanan. *Study of biomechanics of human gait and mechanics of bicycle fret-saw to find out its treatment potentials in cases of below knee amputations.* Nagpur. Dr. (Mrs.) S.S. Navagiri, Department of Anatomy, Govt. Medical College, Nagpur.

5. Pandya, Tarulattaben N. *Nighantuon ke pariprekshya mein bhav prakash : Nighantu ka adhyayan.* Gujarat Ayurved. Shri J.M. Sharma, I/c Head of Dravyaguna, Gujarat Ayurved University, Jamnagar.

6. Roy, Banani, *Evaluation of mutagenic potentials of some antileprotic and antifilarial drugs.* Sambalpur. Dr. R K Das, Reader, Postgraduate Department of School of Life Sciences, Sambalpur University, Jyoti Vihar, Burla.

7. Sargunaraj, Deepa. *Electromyograph feedback in anxiety neurosis : A therapeutic study.* Bangalore. Dr. V. Kumaraiah, Assoc. Prof., Department of Clinical Psychology, National Institute of Mental Health and Neuro Sciences, Bangalore.

8. Shyamala, K C. *Speech and language behaviour of the cerebral palsied.* Mysore. Dr. M.S. Thirumalai, Prof. cum-Deputy Director, Central Institute of Indian Languages, Manasagangotri, Mysore.

Agriculture

1. Agarwal, Abha. *Genetic anlysis for some metric traits related to productivity and quality in macaroni wheat (Triticum durum Desf).* CSAT, Kanpur. Dr. C.N. Chaubey.

2. Agarwal, Shri Krishan. *Studies on slow release nitrogen fertilizers and nitrification inhibitor in relation to nitrogen utilization in rice-wheat rotation.* CSAT, Kanpur. Dr. Harishanker.

3. Borkakati, Kabindra. *Adsorption, movement and forms of occurrence of boron in major soil groups of Assam.* PAU.

4. Datta, Mrinmay. *Mineralogy and chemistry of oxides hydrons oxides and amorphous components of soils.* Calcutta.

5. Laxmi Prasad. *Nutritional studies on banana (Musa paradisiaca L.) var. basrai dwarf.* CSAT, Kanpur. Dr. A.R. Singh.

6. Pawar, Vithal Deorao. *Processing of moth bean (Phaseolus aconitifolius Jacq) for improved nutritional functionality and elimination of certain antinutritional factors.* Marathwada Agrl. Dr. U. M. Ingle, Director, Extension Education, Marathwada Agricultural University, Parbhani,

7. Senapati, Prafulla Chandra. *Water resources planning for canal command areas of Orissa.* OUAT. Dr. R. Lal, Dean, College of Agricultural Engineering and Technology, Orissa University of Agriculture and Technology, Bhubaneswar.

8. Sharma, Tilak Raj. *Bromatological studies on some improved varieties of apricot (Prunus armeniaca L). grown in North India.* PAU.

9. Sodhi, Yashpal Singh. *Studies on isogenic lines for Lr genes and some factors influencing rust resistance in wheat.* PAU.

10. Uma Shankar. *To study the nutrient removal by weeds and crops in groundnut based pigeonpea intercropping system.* CSAT, Kanpur. Dr. R.S. Singh.

11. Verma, Brajesh Kumar. *Response of sugarcane to levels of irrigation and nitrogen.* RAU.

Animal Husbandry

1. Benche Lal. *Studies on chhana preservation by using some antimicrobial agents.* CSAT, Kanpur. Dr. D. C. Kulshrestha.

2. Misra, Laxmi Datt. *Studies on the use of bentonite as an adjuvant as well as an agent for the concentration of foot and mouth disease virus antigens.* Rohilkhand. Dr. S.M. Lal, Indian Veterinary Research Institute, Izatnagar.

3. Rajeev Kumar. *Pesticide residue in milk sold in Kanpur city.* CSAT, Kanpur. Dr. D.C. Kulshrestha.

4. Verma, Atul Kumar. *Utilization of Karanj (Pongamia globra) cake on production efficiency in poultry and its influence on histopathological alterations in certain tissues of broilers and layers.* Bisra Agrl.

National Law School of India University

BANGALORE

Refresher Courses for Law Teachers

The National Law School of India University, Bangalore will be conducting three Refresher Courses for Law Teachers during 1989 under the UGC Sponsored Academic Staff College programme. While the first two general Refresher Courses are scheduled between 12-31 May, 1989 and 1-21 June, 1989, the third Refresher Courses in the area of CRIMINAL LAW will be conducted in October, 1989.

Full-time Law Teachers, preferably Lecturers/Assistant Professors interested in the above programmes may write to the Director, NLSIU, Central College Compound, Bangalore-560 001. The last date for sending applications on plain paper giving particulars of qualifications, experience, etc., is **20th April, 1989.**

REGIONAL ENGINEERING COLLEGE

CAMP OFFICE : MEHRCHAND POLYTECHNIC
HOSTEL, KABIR NAGAR,
JALANDHAR—144008. (Pb.)

Advertisement No. 1/89

Applications for the following posts are invited on prescribed forms available by sending Demand Draft on State Bank of India, New Grain Market, Jalandhar (Code No. 1547) or Indian Postal Order payable at Jalandhar in favour of the Principal, Regional Engineering College, Jalandhar for Rs. 5/- (Rs. five only) alongwith a self addressed unstamped envelope of size 27 cm. x 12 cm., so as to reach the undersigned by 20.4.1989 :

Sr. No.	Discipline	Prof.	Asstt. Prof.	Lecturer
1.	Computer Science & Engineering	1	—	1
2.	Electronics & Communication Engineering.	1	1	—
3.	Industrial Engineering	—	1	1
4.	Applied Mathematics	—	1	1
5.	Humanities & Management (Language Communication, Sociology, Industrial, Personnel & Financial Management)	—	—	1

Pay Scale : (Likely to be revised)
Professor : 1500-60-1800-100-2000/125/2-2500
Asstt. Prof. : 1200-50-1300-60-1900
Lecturer : 700-40-1100-50-1600

Qualification & Experience

The details of qualifications and experience required for each post shall be supplied alongwith the application form. Incomplete and late submitted applications shall not be considered.

Note : Candidates who had applied for any of these posts in response to earlier advertisement of February, 1988 need not apply again.

REGISTRAR

WANTED (Second Attempt)

A Lecturer in Hindi (Reserved for S/C, S/T). Pay/Qualification as per Saurashtra University/Gujarat Government. Apply within 15 days to PRINCIPAL Shri J.S. Parmar, Arts & Comm. College, KODINAR 362725 (Dist. AMRELI) with true cepies of certificates.

P.B. Barad
Secretary

Mahendra J. Safi
PRINCIPAL

B. B. SMARAK TRUST
KODINAR

INDIAN COUNCIL OF MEDICAL RESEARCH

I.C.M.R. AWARDS—1989

Indian Council of Medical Research invites nominations/applications from Indian Scientists for its various prizes and awards in the field of bio-medical sciences. Application forms and other relevant information about the prizes can be obtained from the Director General, Indian Council of Medical Research, (Division of BMS), Ansari Nagar, New Delhi-110 029. Nominations and completed applications should reach this office on or before 31.7.1989.

DIRECTORATE OF PLANT PROTECTION, QUARANTINE & STORAGE N.H. IV, FARIDABAD (HARYANA)

ADMISSION NOTICE

Applications are invited from UNEMPLOYED AGRICULTURAL GRADUATES for admission to the Thirteenth Post Graduate Diploma course in Plant Protection scheduled to commence at the Central Plant Protection Training Institute, Hyderabad from 4th July, 1989. The course provides specialised training on various aspects of plant protection and is intended for the benefit of persons desirous of making plant protection as a career.

Seats : 20 (5 seats reserved from SC/ST, failing which for others). Preference in admission will be given to candidates belonging to farmer's family. A certificate from thasildar/deputy thasildar in support of father's occupation is essential.

Educational qualifications: A Bachelor's degree in Agriculture.

Duration : 10 Months. **Stipend :** 220/- per month.

Medium of Instruction : English. **Accommodation : Free Hostel** accommodation will be provided.

No travelling allowance will be allowed for joining the course or leaving it on completion. Only such Unemployed Agricultural Graduates who are validly registered with Employment Exchanges are eligible for admission. *Trainees shall have to executive a Bond of refund the amount of stipend in case they discontinue the training course or in the event of securing employment in the Private sector.*

Applications on plain paper, giving particulars regarding full name (in block capital letters), date of birth, nativity, present and permanent address with pincode, passport-size photograph, telegraphic address, status, whether belonging to SC/ST, educational qualifications with percentage of marks/overall grade, point average at all examinations commencing from Higher School or Equivalent, past experience, if any, alongwith the Employment Exchange Registration number and attested copies of all certificates including nativity should reach the **Director, Central Plant Protection Training Institute, Rajendranagar, Hyderabad-500 030,** on or before 30th APRIL, 1989 Original certificates are to be produced at the time of admission. The decision of the Plant Protection Adviser to the Government of India in the selection of candidates for admission shall be final. *"Inservice candidates may apply through proper channel"*

davp 88/816

Combined Entrance Examination 1989-90 for ADMISSION to M.Sc./M.Tech—Bio-Technology

At M.S. University Baroda
G.B. Pant University of Agriculture & Technology
Tamil Nadu Agricultural University
Banaras Hindu, Goa, Jawaharlal Nehru,
Madurai Kamaraj, Poona and Jadavpur Universities

The Jawaharlal Nehru University will hold on May 22, 1989 a Combined Entrance Examination for admission to two-year M.Sc. programme in Biotechnology for Banaras Hindu University, Jawaharal Nehru University, M.S. University of Baroda, Madurai Kamaraj University, Poona University, Goa University, G.B. Pant University of Agriculture and Technology, Tamil Nadu Agricultural University and three-semester (1½ year) M.Tech. programme in Biotechnology at the Jadavpur University at the following 27 Centres.

Ahmedabad, Bangalore, Baroda, Bhubaneswar, Bombay, Calcutta, Chandigarh, Cochin, Dehradun, Delhi, Gauhati, Hyderabad, Indore, Jaipur, Lucknow, Madras, Madurai, Patna, Pune, Ranchi, Shillong, Srinagar, Vijayawada, Varanasi, Goa, Pant Nagar (U.P.) and Coimbatore.

ELIGIBILITY FOR ADMISSION

1. **M.Sc. Programme in Biotechnology** : Bachelor's degree under the 10+2+3 pattern of education in Physical Sciences, Biological Sciences, Pharmacy, Agriculture, Veterinary Sciences and/or a Bachelor's degree in Engineering/Technology or Medicine (MBBS) with minimum 55% marks.

2. **M.Tech. Programme in Biotechnology** (Jadavpur University only) : Bachelor's degree in Chemical Engineering, Chemical Technology, Agricultural Engineering, Pharmacy, Food Technology & Bio-Chemical Engineering and/or their equivalent with minimum 55% marks.

SCHOLARSHIPS

The candidates selected for admission to M.Sc. and M.Tech. programmes in Biotechnology will be eligible to receive scholarships of Rs. 400/- P.M. and Rs. 1000/- P.M. respectively.

Biotechnology is a newly emerging multidisciplinary area on the educational scene and programmes have been developed to meet the growing demand for trained manpower for any meaningful biotechnology activity in the country exposing the students to recent exciting developments in the area of genetic engineering and biotechnology and their exploitation in industry, agriculture and medicine.

RESERVATION OF SEATS : 22½% (15% for SC & 7½% for ST) and 3% of the seats are reserved for SC/ST and Physically Handicapped candidates who are eligible to apply irrespective of percentage of marks in the qualifying examination.

HOW TO APPLY

Application forms can be had on cash payment of Rs. 10/- per set of application forms along with brochure by calling personally on any of the following addresses :

1. Assistant Registrar (Combined Entrance Examination Biotechnology), Jawaharlal Nehru University, New Delhi; OR any of the Coordinators of the Biotechnology programme i.e., 2. School of Biological Sciences, Madurai Kamaraj University, Madurai; 3. Biochemistry Department, Faculty of Science, BHU, Varanasi; 4. Faculty of Science, Department of Microbiology, M.S. University of Baroda, Baroda; 5. Department of Zoology, Poona University, Pune; 6. Department of Marine Science, Goa University, Goa; 7. Faculty of Science, G.B. Pant University of Agriculture & Technology, Pant Nagar; (U.P.); 8. School of Genetics, Tamil Nadu Agricultural University, Coimbatore; 9. Deptt. of Food Technology & Biochemical Engineering, Jadavpur University, Calcutta.

Those desirous of obtaining application form by post should address their request only to the Asstt. Registrar (Combined Entrance Examination-Biotechnology), Jawaharlal Nehru University, New Delhi-110 067 along with a crossed Indian Postal Order for Rs. 20.00 payable to Jawaharlal Nehru University, New Delhi to cover the cost of one set of application form and postage, together with a self-addressed envelope of the size 28cm x 20cm inscribing clearly "Application form for M.Sc./M.Tech. in Biotechnology" as the case may be.

The completed forms are required to be mailed only to the Asstt. Registrar (Combined Entrance Examination-Biotechnology), Jawaharlal Nehru University, New Delhi-110 067 and not to other participating Universities.

ISSUE OF FORMS : From February 22, 1989 to April 11, 1989

LAST DATE FOR RECEIVING COMPLETED FORMS :

April 15, 1989.

Note : Candidates who are due to appear in the respective qualifying examination prescribed for eligibility for admission to a particular programme are also eligible to sit in the entrance examination as per conditions laid down in this regard. However, in the event of selection, their admission shall be subject to their securing the prescribed percentage of marks in the qualifying examination and submission of all documents including final marksheets of the qualifying examination as per deadlines prescribed by each University.

PRESSMAN

POST GRADUATE INSTITUTE OF MEDICAL EDUCATION & RESEARCH CHANDIGARH

ADMISSION NOTICE NO. 1/89 (ACAD)

Applications, on prescribed form, are invited for the following postgraduate/post doctoral courses etc., for the academic session starting from First July, 1989 :

I. FIRST YEAR JUNIOR RESIDENTS (for MD/MS courses) in the following Subjects :

(a) CLINICAL GROUP—44

Anaesthesia (4), Dermatology (2), E.N.T. (1), Medicine (8), Obst. & Gynae. (4) Paediatrics (4), Psychiatry (3), Ophthalmology (2), Orth. Surgery (4), Radio-Diagnosis (1), Radiotherapy (2) and Surgery (9).

(b) PARA CLINICAL GROUP—12

Microbiology (5), Pathology (2), Pharmacology (5).

1. Those completing their internship after 30.6.89 are not eligible.

2. Candidates can apply for a maximum of two subjects in clinical Group. They can apply for all the subjects in para clinical group.

3. Only one application needs to be submitted. The choice of subjects may be indicated in the relevant column of the application. Application fee is Rs. 30/- per subject.

4. 22½% of the seats in each of the above mentioned groups are reserved for candidates belonging to Scheduled Castes/Tribes. In addition, 5% seats are reserved for candidates who have rendered or have carried on private practice in rural areas for a minimum period of two years.

5. A limited number of sponsored/deputed candidates may also be accepted for the courses mentioned above.

II. SENIOR RESIDENTS—17 (for DM/M. Ch. Courses) in the following subjects :

D.M.		M.Ch.	
Cardiology	—3	Neuro-Surgery	—2
Clinical Pharmacology	—1	Paediatric Surgery	—2
Gastroenterology	—3	Plastic Surgery	—1
Nephrology	—2	Cardiovascular & Thoracic Surgery	—1
		Urology	—2

(i) One post each in Cardiology and Neuro-Surgery are reserved for candidates belonging to Scheduled Castes/Tribes.

(ii) A limited number (1-2) of sponsored/deputed candidates may also be accepted in all the subjects mentioned above except Urology. Sponsored/Deputed candidates may also be accepted for Endocrinology and Neurology.

(iii) Upper age limit on 1.7.89 : Not more than 35 years for general candidates and 40 years for candidates belonging to Scheduled Castes/Tribes and for ex-servicemen and commissioned officers including E.C.O./S.S.C.O., who have been released on satisfactory completion of assignment (including those whose assignment is due to be completed within 6 months). No upper age limit restriction for deputed/sponsored candidates.

(iv) Candidates due to appear in MD/MS examinations during April/May, 1989 can also apply. They will be admitted to the entrance test only if they supply the result of their examination from the University concerned before the entrance test.

III. Second Year Junior Residents—3 for M D.S. Part I Course in the speciality of Pedodontia and Preventive Dentistry.

IV. Certificate Course in Critical Care Medicine.

V. M.Sc. Medical Technology (Pathology) with Cytology or Haematology or Immunopathology as a special subject.

VI. M.Sc. Medical Technology (Microbiology) with Bacteriology or Parasitology or Virology as a special subject.

VII. M.Sc. Medical Technology (Biochemistry)

VIII. M.Sc. Medical Technology (Pharmacology & Physiology)

IX. M.Sc. Medical Technology Radiology with Radio-Diagnosis or Radiotherapy as a special subject.

CLOSING DATE FOR THE RECEIPT OF APPLICATIONS IS 12TH APRIL, 1989

GENERAL INFORMATION

1. Candidates other than those belonging to Scheduled Castes/Tribes having more than one failure during MBBS (for category I) and BDS (for category III) course are not eligible. Scheduled Castes/Tribes candidates with upto two failures in their MBBS/BDS career will be eligible.

2. Those applying for the reserved seats must furnish with their applications, a certificate from the District Magistrate concerned in support of their claim. No other certificate is entertained.

3. For course at categories IV to IX above only sponsored/deputed candidates will be considered.

4. The course at category III is under the Panjab University.

5. The number of vacancies indicated in categories I to III is provisional and is subject to change without prior notice. There is likelihood of an increase of vacancies of First Year Junior Resident for Anaesthesia and Obst. & Gynae, by 2 each.

6. The application must be accompanied with non refundable fee of Rs. 30/- in the form of postal order drawn in favour of the Director for each of the course mentioned above. A candidate applying for more than one subject/course is required to submit separate application, complete in all respects for each subject/course, except for category No. I.

7. Application form and detailed information are available from the office of the undersigned either personally on payment of Rs. 5/- at the counter from 11.00 A.M. to 12.00 noon on all working days and 3 P.M. to 4 P.M. on all working days except Saturday or by post for which the request must be accompanied with a self-addressed envelope size (23 x 10 cms.) bearing postage stamps of Rs. 3.40 and crossed postal order for Rs. 5/- drawn in favour of the Director.

O.P. Sharda
REGISTRAR

KUVEMPU UNIVERSITY

B.R. Project-577 155 (Shimoga District) Karnataka

No. KU : EST-1 : 88-89

Dated : 1 March, 1989

Applications (in 8 sets) are invited for the following teaching posts :

Professors : (3 Posts) : Economics-1 (SC); Industrial Chemistry-1 (ST); Kannada-1 (GM).

Readers : (9 Posts) : Commerce-1 (SC); Economics-2 (ST, SC); English-1 (A); History & Archaeology-1 (B); Industrial Chemistry-2 (SC, GM); Political Science-1 (C); Sociology-1 (A).

Lecturers : (9 Posts) : Political Science-2 (SC, B); English-2 (ST, B); History & Archaeology-2 (A, ST); Kannada-1 (SC); Sociology-2 (SC, C).

Specializations required :

Professor of Kannada : Modern Kannada Literature/Criticism.
Lecturer in Kannada : Literary Theory/Linguistics.
Lecturers in English : 1. Language and ELT : 2. Comparative Literature/American Literature.
Lecturers in History : 1.Modern Indian History/International History 2. Historiography/Archaeology.
Lecturers in Political Science : 1. International Relations/Public Administration. 2. Political Theory/Social Movements.
Reader in Economics : Econometrics.

The Pay-scales and qualifications are those prescribed by the UGC (details will be given along with the application forms).

The application forms may be obtained from the Registrar, on sending (i) a crossed D.D. purchased at any branch of the State Bank of Mysore, B.R. Project and drawn in favour of the Finance Officer, Kuvempu University, as detailed below : Rs. 40/- for the posts of Professors and Readers; and Rs. 30/- for the posts for Lecturers; (ii) A self-addressed envelope (6" x 12") with stamps of Rs. 4.00.

The last date for receiving the applications is **10th April, 1989.**

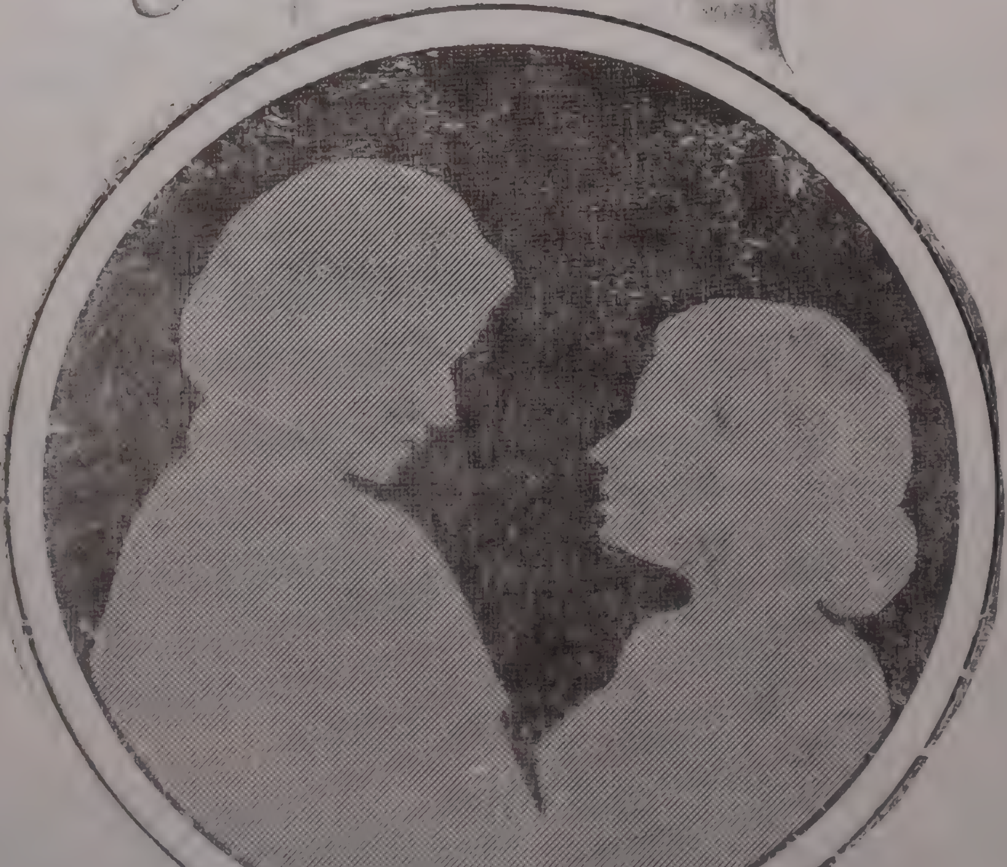
If suitable candidates are not available in a particular category, the posts will be filled by persons of other categories as per the Government rules.

REGISTRAR

PREVENT AIDS

Sex Outside marriage is

RISKY



BE CAREFUL

Issued by Central Health Education Bureau, (DGHS)
Ministry of Health and Family Welfare, Kotla Road, New Delhi

davp 88/835

CLASSIFIED ADVERTISEMENTS

INDIRA KALA SANGIT VISHWAVIDYALAYA
KHAIRAGARH, MP-491 881

No.-AS/Dev/89/5997 (1 to 17)

Dated : 24th February, 1989

APPLICATIONS are invited for the following posts in the University Teaching Departments, viz, (i)—Professor of Dance (Kathak), (ii)—Lecturer in Bharat Natyam.

Scale of Pay : Professor : Rs. 4500-150-5700-200-7300/-, Lecturer—Rs. 2200-75-2800-EB-100-4000/-.

Qualifications for Professor and Lecturer are as prescribed by the University Grants Commission. Details of qualifications may be obtained from the Registrar. Posts are permanent and carry CPF benefits and DA/ADA at University rates from time to time.

APPOINTEE will be on probation according to University rules. Retirement age 60 years. Reservation for posts for SC/ST will be according to Government rules. If candidates are not available or not found suitable, posts will be filled up from general categories. Prescribed application forms **(in six copies)** and other details may be obtained from the Registrar sending self-addressed stamped envelope of Rs. 3.80/- of 25 x 12 cms. Application fee Rs. 25/- for Professor and Rs. 15/- for Lecturer in the form of IPO. Last date for receipt of prescribed filled-up applications in six copies **is 20th April, 1989.** No blank prescribed application forms will be sent/supplied after **10th April,** 1989.

THE UNIVERSITY reserves the right o keep vacant any of the advertised posts without assigning any reason. Candidates called for interview will be required to come at their own cost. Candidates who are in service must apply THROUGH PROPER CHANNEL.

M.K. Gangajaliwale
REGISTRAR

Indian Council of Agricultural Research

DR. P.B. SARKAR ENDOWMENT PRIZE FOR THE TRIENNIUM 1986-89

Nominations are invited for Dr. P.B. Sarkar Endowment Prize for Agricultural Research for the triennium 1986-89. The award is given once in three years for notable and original research, both fundamental and applied, calculated to lead to enhanced food production in India as revealed in books, monographs, papers or any other published account. The award carries an amount of Rs. 5,000/- (Rupees five thousand only).

The award is open to Indian scientists only. The following are the conditions of eligibility for this award :

- All research workers engaged in research in the fields of agriculture, animal husbandry and allied sciences shall be eligible for the award;
- The award of the prize shall be made for notable and original research, both fundamental and applied, calculated to lead to enhanced food production in India as revealed in books, monographs, papers or any other published account; and
- Candidates shall be judged on the basis of results of researches achieved/contributions made by them during the five years preceding the year of award. In the case of a claim based on evolution of new varieties, the final trials should have been completed within five years preceding the year of the award.

The persons who are competent to submit the n ominations for the award include Vice-Chancellors of Agricultural Universities or other Universities having a faculty of agricultural or biological sciences, Director of Research Institutes including Principals of Agricultural and Veterinary Colleges, Presidents of scientific societies and academies and heads of the principal scientific establishments in the country, such as, CSIR, BARC etc. Nominations for the award should be supported by a statement of work, research accomplished or performed by the candidate(s) who is being nominated and a reasoned justification for the nomination together with reprints of publications or other supporting data.

The last date for receiving nominations for the award is **31st March, 1989.** Six copies of the proposals on the prescribed proforma for the award should be sent in a sealed cover marked "Confidential" to Shri C.R. Mohapatra, Deputy Secretary(M), Indian Council of Agril. Research, Krishi Bhawan, New Delhi-110 001. The copies of the proforma can be obtained from him by sending a self-addressed envelope of the size of 27 cm x 12 cm. Applications/nominations received without six sets of reprints of publications are liable to be rejected at the scrutiny stage.

davp 88/873

Marathwada Agricultural University

PARBHANI-431 402 (MAHARASHTRA STATE)

ADVERTISEMENT NO. MAU/1/89

Dated : 28.2.1989

Applications in the prescribed form are invited on or before 5.4.1989 for the following posts in the pay scales mentioned against each post.

Sr. No.	Designation of the Post	State or ICAR Scheme	Pay Scale (existing)	No. of Posts
1	2	3	4	5
(I)	**Faculty of Agriculture**			
1.	Associate Professor of Horticulture.	STATE	Rs. 1200-50-1300-60-1900/-	1
(II)	**Faculty of Agricultural Engineering**			
2.	Associate Professor of Soil & Water Conservation	STATE	Rs. 1200-50-1300-60-1900/-	1
3.	Associate Professor of Basic Science & Computer Technology.	STATE	-do-	1
(III)	**Faculty of Agriculture**			
	Agronomy			
4.	Junior Agronomist	ICAR	Rs. 700-40-1100-50-1600/-	4
5.	Assistant Professor of Agronomy	STATE ICAR	-do-	2 1
6.	Junior Scientist (Agronomy)	ICAR	-do-	1
	Animal Husbandry & Dairying			
7.	Assistant Professor of Animal Husbandry & Dairying.	STATE	Rs. 700-40-1100-50-1600/-	2
8.	Subject Matter Specialist (Animal Husbandry & Dairying)	ICAR	-do-	1
9.	Assistant Professor of Veterinary Science. (in the Faculty of Agriculture).	STATE	-do-	1
	Agril. Chemistry			
10.	Assistant Professor of Agril. Chemistry.	STATE	Rs. 700-40-1100-50-1600/-	4
11.	Assistant Scientist	ICAR	-do-	1
12.	Junior Chemist	ICAR	-do-	1
	Agril. Extension			
13.	Assistant Professor of Agril. Extension.	STATE	Rs. 700-40-1100-50-1600/-	1
	Plant Pathology			
14.	Pathologist	STATE	Rs. 700-40-1100-50-1600/-	1
15.	Assistant Professor of Plant Pathology	STATE	-do-	1
	Horticulture			
16.	Assistant Professor of Horticulture	STATE	Rs. 700-40-1100-50-1600/-	5
	Agricultural Engineering			
17.	Assistant Professor of Agril. Engineering.	STATE	Rs. 700-40-1100-50-1600/-	2
(IV)	**Faculty of Agricultural Engineering**			
18.	Assistant Professor of Irrigation & Drainage	STATE	Rs. 700-40-1100-50-1600/-	2
19.	Assistant Professor of Post Harvest Technology	STATE	-do-	2
20.	Assistant Professor of Farm Power & Mechinery	STATE	-do-	2
21.	Assistant Professor of Soil & Water Conservation	STATE	-do-	2
22.	Assistant Professor of Farm Structure & Rural Electrification.	STATE	-do-	1
23.	Assistant Professor of Basic Science & Computer Technology.	STATE	-do-	1
24.	Assistant Professor of Civil Engineering.	STATE	-do-	1
25.	Assistant Professor of Mechanical Engineering	STATE	-do-	1
26.	Assistant Professor of Electrical Engineering.	STATE	-do-	1

1	2	3	4	5
(V)	**Faculty of Veterinary & Animal Science**			
27.	Assistant Professor of Animal Production	STATE	Rs. 700-40-1100-50-1600/-	1
28.	Assistant Professor of Microbiology.	STATE	-do-	1
29.	Assistant Professor of Vety. Physiology & Biochemistry.	STATE	-do-	3
30.	Assistant Professor of Anatomy	STATE	-do-	2
31.	Assistant Professor of Economics.	STATE	-do-	1
32.	Assistant Professor of Agriculture.	STATE	-do-	1
33.	Assistant Professor of Dairy Science.	STATE	-do-	1
34.	Assistant Professor of Poultry Production.	STATE	-do-	1
(VI)	**Faculty of Home Science :**			
35.	Assistant Professor of Foods & Nutrition.	STATE	Rs. 700-40-1100-50-1600/-	1
36.	Assistant Professor of Home Management.	STATE	-do-	1
	General Posts :			
37.	Physical Instructor (one for female candidate)	STATE	Rs. 700-40-1100-50-1600/-	3
38.	Assistant Librarian	STATE	Rs. 700-40-1100-50-1600/-	1
39.	Research Editor	ICAR	Rs. 700-40-1100-50-1300/-	1
40.	Medical Officer	STATE	Rs. 600-30-750-EB-40-1150/-	1
41.	Agricultural Officer/Sr. Research Assistant	STATE/ ICAR	Rs. 550-20-700-25-900/-	20

Qualification for the Post of Associate Professor (Sr. No. 1 and 2)

1. Ph.D. in respective subject with five years experience in teaching, research or extension education of which two years should be in the cadre of Assistant Professor or its equivalent.

OR

Master's degree in respective subject with seven years experience in teaching, research or extension education of which three years should be in the cadre of Assistant Professor or its equivalent.

2. Evidence of published papers in recognised journals.

Qualification for the Post at Sr. No. (3)

1. Ph.D. in computer technology with five years experience in teaching, research or extension education of which two years should be in the cadre of Assistant Professor or its equivalent;

OR

Master's degree in computer technology with seven years experience in teaching, research or extension education of which three years should be in the cadre of Assistant Professor or its equivalent.

2. Evidence of published papers in recognised journals.

Qualification for the Posts of Assistant Professor/Equivalent at Sr. No. 4 to 22 and 24 to 36.

1. Ph.D. in respective subject; OR Master's degree in the respective subject with two years expeprience in teaching, research or extension education;
2. Evidence of published papers in recognised journals.

Qualification for the Post at Sr. No. (23)

1. Ph.D. in Computer Technology; OR Master's degree in computer technology with two years experience in teaching, research or extension education;
2. Evidence of published papers in recognised journals.

Qualification for the Post of Physical Instructor (Sr. No. 37) :

Post graduate diploma/Certificate/Degree in Physical Education.

Qualification for the Post of Assistant Librarian (Sr. No. 38) :

1. Ph.D. in respective subject.

OR

Master's degree in respective subject with two years experience after Master's degree in a responsible Professional capacity in a Library.

Desirable :—Evidence of published papers in recognised journals.

General Conditions for the Post at Sr. No. (38) :

1. In case of candidates with the required experience are not available, experience may be relaxed and top ranking candidates having consistent and meritorious record may be considered.
2. Ph.D. degree will be preferred.
3. Minimum Second class or equivalent CGPA, at Bachelor's and Master's level.
4. Bachelor's degree in concern faculty will be preferred.
5. Managerial experience may be considered as the experience in the respective discipline.
6. Master's degree by research is considered eligible.

Qualificaiion for the Post of Research Editor (At Sr. No. 39) :

Master's degree and two years experience in editing scientific report writing.

OR

Post-graduate degree/diploma in Agriculture Journalism/Journalism and two years experience in editing scientific report writing.

Qualification for the Post of Medical Officer (at Sr. No. 40)

(i) M.B.B.S. Degree recognised by the Medical Council of India.

AND

(ii) At least two years experience as registered Medical practitioner. Persons holding a degree of Doctor of Medicine (M.D.) will be prefered.

Higher start will be considered for candidates having higher qualification/experience.

Age limit will be relaxed in case of deserving candidates.

Qualification for the Post of Agricultural Officer/Sr. Research Assistant (at Sr. No. 41)

Master's degree in respective subject; **OR**

Bachelor's degree in first class with distinction. Atleast second class Bachelor's degree with three years experience as Junior Research Assistant or its equivalent.

Age Limit :

1. Maximum (40) years for the posts at Sr. No. 1 to 3.
2. Maximum (30) years for the posts at Sr. No. 4 to 41.

The maximum age limit will be relaxable for all the posts by five years for the candidates belonging to SC/ST/NT/DNT/OBC.

The age limit shall not apply to persons already in the service of Central Govt./State Govt./this University/or any other University/Institute as recognised by this University.

Application forms for the post at Sr. No 1 to 40 can be obtained from the Comptroller, Marathwada Agricultural University, Parbhani, on payment of Rs. 2/- in the form of crossed Indian Postal Order in the name of the Comptroller, Marathwada Agril. University, Parbhani, and for these posts applications in the prescribed form complete in all respect together with crossed Indian Postal Order of Rs. 8/- in the name of Comptroller. Marathwada Agril. University, Parbhani, as registration fees should reach to the Registrar, Marathwada Agricultural University, Parbhani, by 4.30 P.M. on 5.4.1989.

Application form for the post at Sr. No. 41, can be obtained from the Comptroller, Marathwada Agril. University, Parbhani, **free of cost, only for unemployed candidates** and the same should be submitted without registration fees to the Registrar, Marathwada Agril. University, Parbhani. latest by 4 30 P.M. on 5.4.1989. Other candidates applying for the post at Sr. No. 41, will have to obtain the prescribed application form at the cost of Rs. 2/- in the form of crossed Indian Postal Order in the name of the Comptroller, MAU, Parbhani, and should submit the same without registration fees to the Registrar, Marathwada Agril. University, Parbhani, latest by 4.30 P.M. on 5.4.1989.

The candidates from abroad may apply on plain paper without crossed Indian Postal Orders. But they will have to complete all the formalities in the event of their selections.

Incomplete applications in any form or those received after prescribed date and time will not be considered and no correspondence thereon will be entertained. No additional certificates/documents will be accepted after the last date of receipt of application forms.

Reservation of the posts for SC/ST/NT/DNT/OBC etc., is as per Maharashtra State Govt. rules. Following posts are reserved for backward class candidates as detailed below :

CADRE	SC	ST	NT/DNT	OBC
1. Asso. Prof.	1	1	—	—
2. Asstt. Prof./Equivalent,	14	9	4	—
3. Agril. Officer/Sr. Res. Asstt.	5	3	2	—
4. Physical Instructor.	1 (failing which)	1 (failing which)	1 (failing which)	1 (failing which)

If the suitable eligible candidates from one reserve category are not available, the posts will be filled in through another reserve category candidates and the backlog if any will be carried over.

The posts shown in ICAR scheme are temporary, but likely to continue. The persons appointed on these posts will continue till the post is continued.

Request for forms must specify the name of the post and Sr. No. accompanied by self-addressed envelope at least of the size of 23 cm. x 10 cm. with Rs. 1-80 stamps adhered to it.

Separate application shall have to be made for separate post. If considered necessary by the University the candidates shall have to appear for personal interview in the University office at Parbhani at candidates own cost.

Nomenclature of the post can be changed as and when need arises.

In the event of large number of applications received in response to the advertisement to avoid inconvenience to all concerned at the discretion of the Vice-Chancellor, limited number of candidates only will be invited for interview even though others not invited for interview might be satisfying the prescribed minimum qualifications.

Candidates already in the service of Central/State Government or any other organisation and those in the service of this University should necessarily apply through proper channel forwarding the advance copy to the undersigned. The advance copy should reach to the Registrar, Marathwada Agricultural University, Parbhani-431 402, latest by 4.30 P.M. on 5.4 1989. The applications to be received through proper channel should reach latest by 4.30. P.M. on 20.4.1989.

University shall not be responsible for postal delay. The fact that the posts are advertised does not mean that necessarily all the posts will be filled in.

Canvassing in any form will disqualify the candidate for employment under the University.

A.M. Govande
REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY
MADRAS.

Advertisement No. IITM/R/2/89 **Dated : 27.2.1989**

IIT Madras is a higher technological Institute having ongoing collaborative programmes with leading Technical Universities of West Germany, France, USA and Australia. Apart from its regular academic programmes at Undergraduate, Master's and Doctoral levels, the Institute is actively engaged in Sponsored Research & Industrial Consultancy. As a central facility, the Institute has Siemens 7580-E time sharing system with 16mb of memory and 80 terminals in a specially designed building to cater to the needs of the various departments/centres/sections of the Institute.

Applications are invited for the following Faculty/Scientific positions and top positions in Central Library in the pay scales noted. The scales of pay are likely to be revised. The figures given in parentheses against each category are the approximate gross emoluments including House Rent Allowance at the minimum of the present scale of pay.

1. **Professor**
   Rs. 1500-60-1800-100-2000-125/2-2500 (Rs. 4963.00)
2. **Assistant Professor**
3. **Senior Scientific Officer Grade-I**
   Rs. 1200-50-1300-60-1900 (Rs. 4481.00)
4. **Lecturer**
5. **Senior Scientific Officer Grade-II**
   Rs. 700-40-1100-50-1600 (Rs. 3064.50)
6. **Librarian**
   Rs. 1500-60-1800-100-2000-125/2-2500 (Rs. 4963.00)
7. **Programmer**
   Rs. 700-40-1100-50-1600 (Rs. 3064.50)

The posts of Lecturer and Senior Scientific officer Grade-II are reserved for SC/ST candidates. If suitable candidates are not available, the posts will be treated as dereserved.

The post of Programmer is also reserved for SC/ST candidates. If suitable candidates are not available others will be considered for appointment on temporary basis.

Posts are permanent or likely to become permanent. Besides pay, posts carry allowances and retirement benefits as per Institute rules. Higher initial pay is admissible to exceptionally qualified and deserving candidates. Candidates called for interview will be paid first class railway fare from the place of their duty/residence to Madras and back by shortest route as per Institute rules.

QUALIFICATIONS & EXPERIENCE :

1. Professor

(a) A good academic record with Bachelor's or Master's degree in the relevant area. A Doctorate degree in any of the specialisations mentioned or closely related area is essential.

(b) 10 years experience in the fields of specialisation prescribed, of which atleast 5 years should be in teaching and/or research (for Engineering Departments/Centres).

10 years experience in the field of specialisation prescribed of which atleast 5 years should be in teaching at postgraduate level (for Science Departments).

(c) Research work of good quality published in journals of repute.

(d) Experience in guiding research.

2. Assistant Professor

(a) A good academic record with Bachelor's or Master's degree in the relavant area. A Doctorate degree in any of the specialisations mentioned or closely related area is essential.

(b) 5 years experience in the fields of specialisation prescribed, of which atleast 2 years should be in teaching/and/or research (for Engineering Departments/Centres).

5 years experience in the field of specialisation prescribed of which at least 2 years should be in teaching at postgraduate level (for Science Departments).

(c) Research work of good quality published in journals of repute.

(d) Experience in guiding research.

3. Senior Scientific Officer Grade-I

Bachelor's degree in Engineering/Master's Degree in Science with 7 years relevant industrial/research experience.

Master's degree in Engineering/Ph.D. in Science with 5 years relevant industrial/research experience.

4. Lecturer

A good academic record with a Master's degree in Engineering in the relevant area.

OR

Doctorate degree in Science in the relevant area. 2 years industrial/research experience in the related fields.

5. Senior Scientific Officer Grade-II

Bachelor's degree in Engineering in the relevant area with 2 years relevant industrial/research experience.

OR

Master's degree in Engineering.

6. Librarian

(a) First Class Master's degree in Library Science

OR

M.A./M.Sc./M.Com with first class Bachelor's degree in Library Science.

(b) At least ten years experience as Librarian or in a responsible professional capacity in a University Library.

(c) Ph.D. degree or equivalent research work in the field relevant to the Profession.

(d) Training in computerization/information technology and experience of programming relevant to the computer application in Library and information fields will be an added advantage.

If the candidates are not found suitable for the post, they may be considered for the lower post of Deputy Librarian in the pay scale of Rs. 1200-1900 (Unrevised) at the discretion of the Institute.

7. Programmer

(a) Good academic record with first class Master's degree in Mathematics, Statistics, Physics or Master's degree in Computer Applications.

OR

Graduate in Engineering, preferably in Computer Science.

(b) At least 4 years experience of programming relevant to computer application preferably in Library and Information Fields.

In exceptional cases, the requirement of experienes may be relaxed at the discretion of the Institute.

DEPARTMENTS AND FIELDS OF SPECIALISATION

1. Aerospace Engineering

Candidates should have at least one of their degree in Engineering, preferably Aeronautical/Aerospace Engineering.

Levels : Professor/Assistant Professor/Lecturer

Aerodynamics
Structures
Propulsion
Design
Systems and Aircraft Production

2. Centre for Systems & Devices

(Relevant area is Electrical Engineering)

Level : Lecturer/Senior Scientific Officer Grade-II

Semiconductor Devices

(Those with Master's degree in Material Science with two years experience of R & D Molecular Beam Epitaxial growth of Semiconductors or Ph.D. in Physics preferably with experience in Molecular Beam Epitaxial growth of Semiconductors may also apply).

3. Mechanical Engineering

Level : Assistant Professor / Senior Scientific Officer Grade-II.

Manufacturing Processes
Computer Aided Design (CAD)
Computer Aided Manufacturing (CAM)
Computer Aided Inspection and Quality Control

4. Metallurgical Engineering

Level : Lecturer / Senior Scientific Officer Grade-II

Metal Joining and Testing
Non-Destructive Testing
Metallography and Heat Treatment
Metal Forming and Testing
Modern Experimental Techniques
Process Metallurgy

5. Physics

Level : Assistant Professor / Senior Scientific Officer Grade I.

Low Temperature Physics with experimental research in Superconductivity (and with experience in handling helium liquifiers).

GENERAL INFORMATION / CONDITIONS/INSTRUCTIONS

(i) For all posts where postgradute qualification is prescribed experience means experience gained after successful completion of Master's degree.

(ii) The prescribed qualifications are minimum and the mere fact that a candidate possess the same will not entitle him/her for being called for interview.

(iii) The Institute reserves the right to restrict the number of candidates for interview to a reasonable limit on the basis of qualifications and experience higher than the minimum prescribed in this advertisement.

(iv) The Institute also reserves the right of rejecting any or all the applications without assigning any reason therefor.

(v) Attested copies of certificates in support of claims in respect of age, qualifications, experience etc., should be sent along with the applications failing which such claims will not be accepted and application will be rejected. No correspondence with the applicant will be made in this behalf.

(vi) Persons in the service of Government Establishments, Public Sector Undertakings should apply through proper channel.

(vii) Separate application has to be filed for each post/department.

For application forms please address, the Registrar, Indian Institute of Technology, Madras 600 036 with a self-addressed, stamped (Re. 1.00) envelope (26 cm x 11 cm). The cover must be superscribed "Requisition for Application Form for the post of————". Indian Nationals abroad may apply on plain paper with full delails of educational qualifications, research experience and names and addresses of three referees from whom reference letters may be obtained.

Completed applications with a crossed non-refundable current Indian Postal Order of the value of Rs. 7.50 (Re. 1.90 for SC/ST candidates) drawn in favour of the Institute payable at IIT Madras P.O., superscribing on the cover "APPLICATION FOR THE POST OF ————" should be sent to the Registrar of the Institute.

The last date for receipt of completed applications is **20th April, 1989.**

REGISTRAR

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University News

MONDAY, MARCH 27, 1989

Rs. 2.50

K.V. Ramana, Vice-Chancellor, Andhra University, presenting the Vizzy Trophy to Mr. Abhey Sharma, Captain
orth Zone, the winners of the Inter Zonal Universities Cricket Championship held at Waltair. On his right is Dr. G
Joint Secretary, AIU and on his left, Shri H.A. Prasad Rao, Director of Physical Education, Andhra University.

JOINT ADMISSION* TO

Three Semester M.Tech. Programme—July 1989

(with Scholarship)
of

INDIAN INSTITUTE OF TECHNOLOGY
BOMBAY, KHARAGPUR & MADRAS

General : Applications in prescribed form are invited for admission to the three-semester M Tech. programme offered by the three Institutes and M.Arch., MCP and MRP programmes offered at IIT Kharagpur.

Disciplines : Disciplines and areas of specialisation for the Master's programmes of the three IITs are given in the information brochure which will be sent along with the application form.

Minimum Qualification for Admission : The candidates for admission to the Master's programmes mentioned in the brochure must have (a) a Bachelor's degree in Engineering/Technology or equivalent or a Master's degree in Science or a Bachelor's degree in Architecture and (b) a valid GATE SCORE, with a minimum of overall 70 percentile (40 percentile for SC/ST candidates). Candidates who have been successful in the GATE 1989 but whose results in the qualifying degree examination have yet to be declared are also eligible to apply provided they complete all requirements for the degree latest by August 1, 1989. A candidate admitted once for M.Tech. programme with Scholarship will not be eligible for admission with Scholarship at the same or any other Institute on the same GATE SCORE.

Seats are reserved for SC/ST candidates as per rules.

INFORMATION BROCHURE, APPLICATION FORM AND BASIC DATA-CUM-CHOICE SHEET can be obtained by sending

(i) the application-cum-registration fee of Rs. 50/- by a crossed bank draft (only MICR draft will be acceptable for IIT, Bombay and IIT, Madras) in favour of the IIT to which the request is made, drawn on the State Bank of India of the same place;

(ii) a letter of request mentioning the details of the Bank Draft, and

(iii) two slips of size 5 cm x 10 cm indicating the applicant's postal address in capital letters to any of the following :

THE CHAIRMAN, GATE
Indian Institute of Technology
Bombay—400 076, or Kharagpur—721 302 or Madras—600 036

Issue of Application forms commences on—April 18, 1989
LAST DATE for :

Issue of Application forms—by post	**—May 2, 1989**
at the Counter	**—May 11, 1989**
Receipt of completed applications	**—May 12, 1989**

Sponsored or part-time candidates or self-financing foreign students should not apply in response to this advertisement. They should contact directly, the Dy. Registrar (Academic/PG studies) of the concerned Institute for application form and other details.

***For admission to IIT Kanpur and IIT Delhi please look for separate advertisements.**

UNIVERSITY NEWS

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Editor :
SUTINDER SINGH

62nd Constitutional Amendment and Student Activism

K. K. Bajaj*

After an almost unnerving and explosive wave of student unrest between the late sixties and early seventies the weathermen of Indian Student politics have been relishing the lull in student activism so far. But the recent lowering of the voting age resulting in giving our youth in universities and colleges the immediate opportunity to directly participate in the political mainstream of our country, as per the 62nd Constitutional Amendment, would surely attract their prompt attention now. This is a momentous decision and a great opportunity, besides being a challenge, to our youth to give fresh life and direction to the professional politics of their elders. An impressive body of thought of reasonable merit is available on the subject of genesis, growth and spread of student activism in the national and global context. The concept and phenomenon of student participation, right from the days of our freedom struggle to the period of its surpremacy in various universities, has been widely analysed, understood and concluded at different levels. Some convincing and painstaking studies to relate student activities of seventies as a social phenomenon to the organisational role, leadership and management of universities have also been brought out by teachers and social analysts. The stains of parochialism and politicisation to capture positions of vantage in colleges and universities have also been highlighted in certain perceptive attempts to study the whole problem. The contributory effect of our new environmental awareness and change in eco-system of our society with the change in the thrust of higher education and the role of students have also brought about change in outlook. The problems of lack of infrastructural facilities and sufficient job opportunities have also contributed to the cult of agitation on campuses in the past. Selective admissions, illusory examination system and political interference have also caused unrest among students. The lack of adaptability to the challenge of social change has aggravated the crisis. This has been the bleak picture of student activism in retrospect.

Jawaharlal Nehru had declared that a university stands for adventure of ideas and for search of truth. Apparently for an adventure of ideas and search of truth the students and teachers constitute the basic raw material. They are both a means and an end unto themselves. While education is an imperative instrument of social change, the students have to be actively engaged in achieving this change. The role of universities and colleges as catalysts of change has to be taken as vital and not peripheral. Against this background we have to analyse afresh the psychology, reflexes, requirements and vulnerability of our student population besides the role of our teachers. There are variable economic factors in the background and approach of both these categories yet there could be no denying the fact that while the students seek a future and grope in the dark, the teachers have already secured social security. This lends an element of exploitability and anxiety to the former as against the greater role playing capacity and manoeuvarability available with the latter. The element of exploitability among students goes safely with campus politics. Different studies and references to the events in Banaras Hindu University, University of Allahabad,

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Dean of Colleges-cum-Director, College Development Council, Himachal Pradesh University, Shimla-171 005.

Aligarh Muslim University, Delhi University, Jawaharlal Nehru University and Universities of Kerala and West Bengal, has shown strong linkages and foothold of political parties among college and university students. Any instance of dissatisfaction among the students could give rise to protest behaviour. There have been environmental factors, administrative practices, faculty role and perceptions besides media role and the role of opportunist peer groups among the students that have been conveniently turning simple incidents of inconvenience and dissatisfaction among the students into ugly challenges and agitations. The issues could be as simple as occassional poor food, lack of hostel or clasroom facilities, attendance rules, promotion bars, unexpected or stiff question papers with inadequate choice and even the role of educational bureaucracy. Lack of mutual faith and understanding could foment simmering discontent and result in student activism. So the causes are simple but they get exploited in the name of political role playing with the politicization of the whole issue.

As civil rights struggle had sparked reaction and agitation in American universities in sixties; it was the narrow parochial politicization that caused stir in Banaras Hindu University according to Mudaliar Committee report and many of the research studies, which a number of Vice-Chancellors had to face there and resultantly leave the University in despair and state of helplessness. In the study of this university it could also be seen that at times the teachers behaviour and role also contributed to campus protest. Besides being cold, calculating and questionable in their conduct, at times the teachers caused frustration among the students through their partisan approach and triggered protest which became a movement with ugly consequences. Administrators are usually the targets of such protest activities. Their response also promotes protest behaviour. Their indifference and lack of instant involvement in curbing happenings on the campus builds pressure for their identity and role. While they do not wield any intellectual leadership yet they play a strategic and decisive role in the crisis. Notwithstanding these collateral factors in students activism the political factor dominates to change the mood and protest behaviour of students. Historically they have spearheaded revolutions as could be seen in Italy, Germany and Spain before Fascists took over there. In Burma and Vietnam they have been a force to reckon with. In our North East, they characterised political awareness for change. As such student activism linked to politicization of issues by the academic community calls for a reappraisal of role of students, teachers, administrators, politicians and planners. While education is the key to modernisation both economic and social, it cannot be alienated from political will of our students. It is in this context that now the whole body of student youth specially of 18-21 years of age, that has been invited to participate in electing a government will give a new direction and leadership to the country. With this objective in view, the students' awareness will be turned into a movement. They will be offered the whole set of doctrines and beliefs by our different political parties besides the usual academic packages which though are given to them are yet irrelevant and redundant and which they still grudgingly go through. The political effort and incentives will transform the whole academic milieu. The viewpoint will receive a new dimension, relevance and thrust in the context of their political awareness and role. The political parties will find a new body of active youth with their roots in our colleges and universities. While some thinkers may debate the good and bad points of the outcome and fallout of the recent electoral reforms and term these as a bid to politicise the campuses yet it cannot be ignored that this will give our youth the much-needed active political role in national reconstruction that had so far not been available to them. For the young intelligentsia among our students this role is both an opportunity and a promise of real consequence. While the peer groups in our institutions may dominate and try to condition the thinking of our new entrants round the age of 18 yet our political responsibilities are bound to mature through experience, exposure, participation, interaction and involvement in the days to come. The student groups owing allegiance to different parties may mushroom yet national issues would capture the centre stage of the imagination to our youth to make them feel more involved and responsible in the national mainstream. The faculty will have also to give a better account of its leadership after leaving its contingency model role. Its scholastic role and task-oriented holistic behaviour only would be appreciated. In the transitional period till our youth polity gains maturity, we may come across sporadic increase in agitational pressure tactics as a scheme to gain interim leadership yet mature leadership qualities would emerge in the course of time.

It may be argued by people at places that the politicians will now invade universities and exploit them as colonies to promote their political power and may even encourage student disorders. In doing so, they may result in the dissolution of small time local pressure groups and may even shake the academic self-confidence of our neutral teachers yet it may be said that there will be realistic reappraisal of old and

10 APR

new emerging set of values. Instead of remaining silent students and teachers of course books, both will become commentators of every policy and theme of national concern. The element of gullibility will soon get dissolved. The state role in universities and colleges will also undergo a pragmatic change. The feel and thrust of higher education will be realised by our leaders and students community better. The resources will have to be equally distributed between the central and state universities, urban and rural colleges. Neglected and remote corners will have to be better catered to now in the matter of resource allocation, for ensuring overall and uniform development.

Thus in the post-independent India a dynamic step has been taken to initiate our young students of 18-21 years of age group into the task of social reconstruction and government. The measure may invite political parties to the campuses but it will result in a free and democratic debate on their roles and programmes for social improvement and change. The students will have a better feel of their secular, social and political responsibilities. The teachers will become more accountable in the context of diverse political ideologies, challenges and programmes. The administrators and Vice-Chancellors will have greater responsibility to shoulder in the midst of diverse alternatives and demands that the new awareness will bring in its wake. This way the students' participation will cease to be parochial and will acquire a dimension of national importance in the days to come. As a viable support system to this challenge, the universities and colleges will have to strengthen their grievance redressal mechanism with goodwill and confidence. The administrative staff will have to measure upto fresh aspirations of the youth and act with impartiality and self control, The teachers will have to redeem their pledge for the upliftment of society through greater dedication. The Vice-Chancellors will have to accept the new perspective and role of students and ensure greater academic property and discipline of which they are the trusted custodians all through. In fact the amendment will both be an opportunity to students and a challenge to all to redeem its spirit. ☐

INDIAN SCHOOL OF MINES

DHANBAD-826004

No. 614001/89 **Dated : 09.03.1989**

ADMISSION TO M.PHIL. PROGRAMMES

Applications are invited from eligible candidates for admission to 2-semester M.Phil. programme commencing on June 19, 1989 at ISM, deemed to be a University under UGC act, for the session 1989-90 in the following disciplines :

(1) Applied Physics (2) Applied Chemistry (3) Applied Mathematics.

Eligibility : (A) **General Candidates :** M.Sc. degree or equivalent in the relevant subject (including statistics for App. Mathematics) with minimum 55% marks or equivalent grade and passed in GATE or UGC/CSIR all India test for award of fellowship to research scholars.

(B) **Sponsored candidates :** M.Sc. Degree or equivalent in the relevant subject with minimum 55% marks or equivalent grades.

Scholarship : Non-sponsored candidates with valid GATE or UGC/CSIR test scores shall be awarded fellowships at the rate of Rs. 1800/- p.m. for a period not exceeding 12 months.

How to Apply : Application form may by obtained from Dy Registrar (Academic) on request by sending an Indian Postal Order of Rs. 10/- payable to the Registrar, at ISM post office alongwith a self-addressed unstamped envelope of the size 23 cm x 10 cm. Application form may be obtained personally also from the Academic Section.

The application form duly filled in by the candidate may be sent back so as to reach the Dy Registrar (Acad.) by **April 30, 1989.**

Note : No course will run if less than 4 candidates seek admissions.

Dy. REGISTRAR (Acad.)

Modernizing University Administration

Sanjay Kaptan*

Introduction

Education has always proved to be an important resource in development of society. Shultz Dennison and others in the economics of education have clearly established that education plays an important role in socio-economic development of a country : though regarded as residual, its contribution to growth of GNP/GDP is far greater than that of any other factor of production viz. land, labour or capital. The role of higher education is indeed vital to the process of socio-economic development.

The universities in developing countries are accepted as change agents. A university has to assume important responsibilities to the national and social set up as a whole as well as towards the educational development itself. The traditional unilateral function of educational development, spreading of knowledge, is replaced by plurality of objectives because university is accepted as a small sub-system input to the total and integrated social system with diversity of functions and objectives.

To achieve these objectives, a conceived plan for the development of higher education should be drawn up, which should radically improve the quality and standard of higher education and research. Similarly high priority should be given to the improvement of university organization and administration.

Administration of Universities

Traditionally it is believed that university administration is rather different from administration of a business house as universities do not work for profit. Further, university as an organisation is influenced by social, cultural, religious, educational, political as well as legal and governmental actions of variety of interested groups. The functions of a modern university have also become complex and heterogeneous. On the one hand, it has to deal with emotional, social, physical and intellectual development of individual human beings, on the other hand, it has to meet the national and social goals of developing a comprehensive educational policy. It has to meet the requirements of its students—the users, the Government—the funding agency and the society. As the user groups have diversified interest, the university administration has to adopt a set of modern management techniques to satisfy these diversified groups. The number of hazards faced by the university authorities are too many. The nature of problems require instant decisions, in many cases and many a times administrative authority is forced to face a sudden and surcharged situation. In such a case slightest misleading of a situation may have a far reaching impact on future actions of the administration. Various authorities on university administration have enlisted a large number of problems related to internal management of university. They are :

(a) Lack of autonomy due to rigid traditional structure of university as an institution;

(b) Lack of imagination and creativity in the application of university rules and statutes to provide for absorption of new knowledge;

(c) Failure to build links with society, indigenous popular culture and the world of trade;

(d) Internal dissention and lack of commitment to the course;

(e) Poor quality of administration;

(f) Interference with administration by outsiders;

(g) Low morale of staff due to lack of incentives, training and positive motivation;

(h) Growing bureaucratic tendencies and red tapism which results in neglect of work; and

(i) Low productivity of staff due to complicated and lengthy procedures.

No less important is the process of implementation of decisions in the course of which many of the important schemes and decisions get lost either due to mishandling or the absence or lack of proper understanding and appreciation on the part of executors in the administration. In many cases, the administrative machinery does not possess a complete and proper understanding and appreciation of the academic schemes. What is essentially needed is an academic oriented approach to deal with the academic problems and schemes. Kothari Commission has pointed out very aptly, 'lack of proper background, initiative and understanding of important schemes results in failure and defective approach for implementation'. This is specially due to shortage of

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*Reader, *Deptt. of Business Administration and Management, Amravati University, Amravati (M.S.)*

trained personnel in the set up of university administration.

Modernizing the Administrative Practices

The whole atmosphere in the educational sphere is changing world wide. These changes demand a suitable and purposeful administrative set up to cope with its requirements. The total organization of universities should be completly overhauled and streamlined. A.H. Hommadi has noticed following limitations in the present administrative practices and organizational set up of the university :

1. The lines of authority and responsibility are not clearly identifiable because of sudden and unplanned growth;
2. The lack of controlling policy and reduced administrative effectiveness in such areas as budgeting, financial transactions, purchasing and personnel; and
3. The inadequate intra-organizational communication is partially responsible for some of these problems.

It is necessary that in terms of organizational effectiveness university administration must improve. Organizational effectiveness is measured by its performance in relation to its goals. Goals and missions that a purposeful system wants to achieve determine to a large extent its internal structures and managerial processes. Effectiveness may be defind as how well a programme or activity is achieving its stated objectives, its defined goals or other intended effects. Viewed in this way, effectiveness becomes a programmatic concept and persuit of effectiveness analysis by using various criteria becomes feasible. Moreover, it becomes quite clear where management's objectives fit in the persuit of effectiveness and where they do not. Management has to define its goals and objectives first. In addition, to be relevent, concerns and issues must be reviewed from time to time to capture both intended and unintended effects to see whether management's goals need revision. The relationship between goals and effectiveness is explained in Figure 1.

The effectiveness of university administration can be measured by using following four criteria proposed by Prof. Bandopadhyay :

(1) *Steady State Efficiency Creation* : This ensures that every logistic and managerial functions is performed optimally but it does not ensure capability of the organization to adjust changes in environment.

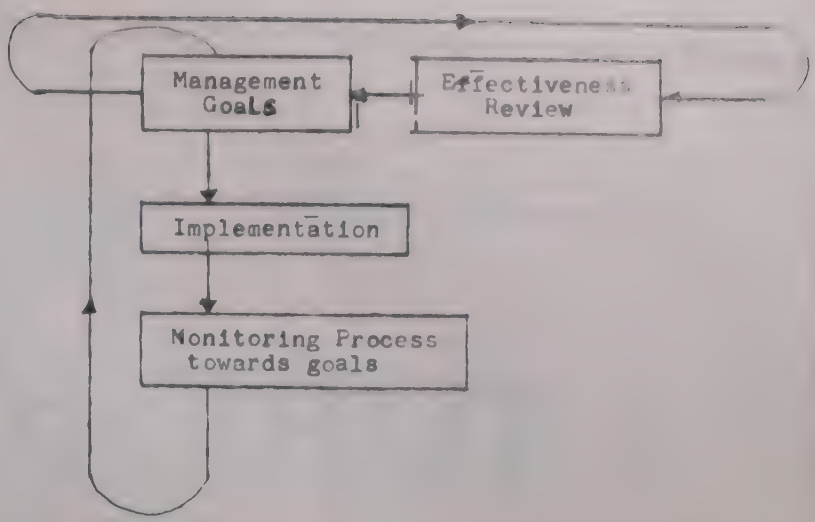


Figure 1. The Dual Control Loops relating to Effectiveness and Achievement of goals.

(2) *Operative Responsiveness System* : This ensures the capability of the organization to cope with changes in volume, to cope with more numbers where the source design and programme do not change.

(3) *Strategic Responsive Criterion* : This ensures that along with change of volume, if nature of function changes, the organization is able to effect strategic adjustments to appropriately cope with such changes. Our universities have not generated adequate capabilities for strategic changes. This needs urgent attention of all those who are the leaders of university administration.

(4) *Structural Responsiveness Criterion* : The criteria demands that organization should be self adaptive with change in environment.

The above criteria can be used as indicators of performance evaluation for a university and its teaching departments. The criteria can be used with necessary changes and modifications as per requirements. However, the criteria have to be supplemented by criteria of economic and human resource feasibility before any structural changes can be adopted finally.

The university planners and administrators should chalk out policies defining the role of each unit, the manner in which the role should be carried out and rules of conduct for each organizational unit. Clear distinction is required among line staff and administrative controls and these should be clearly understood throughout the organization.

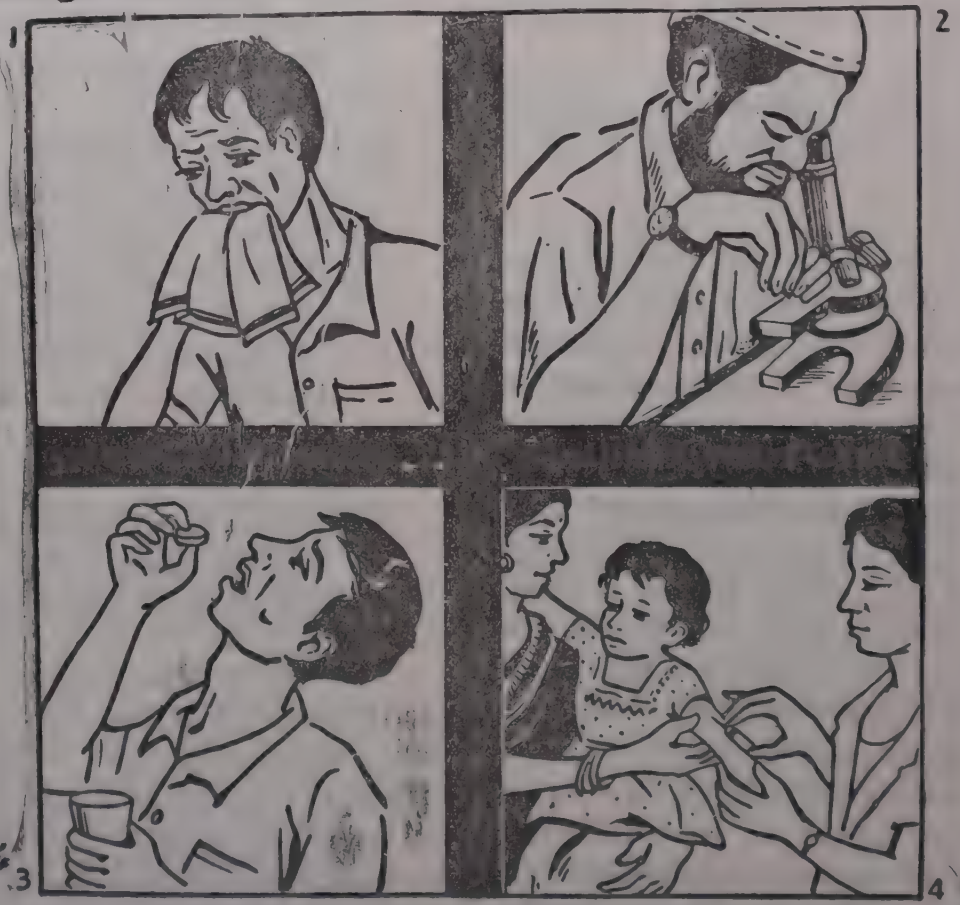
A separate unit be established with clear authority for supervising studies of all aspects of university administration and should be named and made a part of the university's administrative process.

(*Continued on page 10*)

Fight
TUBERCULOSIS

1. If you are having continuous cough for more than two weeks or if you notice blood in sputum, may be, you are suffering from T.B. of lungs.

2. Get yourself examined especially your sputum at the nearest Primary Health Centre, Dispensary or T.B. Centre.



3. T.B. can be cured provided medicines as advised by the doctor are taken regularly for the prescribed period.

4 Prevention is always better than cure. So get your child vaccinated with B.C.G.

Central Health Education Bureau (D.G.H.S.)
Min. of Health and Family Welfare, Kotla Road,
New Delhi-110002.

davp 88/729

New Technological Society

Making a bold plea for assimilation of science and technology into the social and cultural fabric of the country, Padma Bhushan Prof. U.R. Rao, Chairman, Space Commission and Secretary to the Government of India, Department of Space observed, "Qualitative transformation of any society can only be accomplished, if the society as a whole is able to imbibe the scientific spirit and steadfastly work towards assimilation of technology into its cultural fabric. If development of intellectual resources is the fountain for achieving technological progress, emergence of new technological society can occur only when technology becomes broad-based and gets diffused even to the masses". Prof. Rao was delivering the Convocation Address at the 24th Annual Convocation of the Bangalore University. Excerpts

Convocation

Science & Technology on the Indian Scene

In the past four decades since Independence, our country has seen a phenomenal growth of institutions of higher learning, industrial activity and agricultural output. There are today over 135 Universities, 5,000 colleges and four million students. The gross national product of the country which was just around Rs. 9,000 crores in 1950 has now increased to almost fourfold. The output of total foodgrains has increased from about 55 million tons in 1950 to over 150 million tons. In the energy sector, during the same period the coal output has increased from about 35 million tons to 175 million tons, and petroleum production from under one million ton to a staggering figure of 45 million tons. India, the nation where zero was invented, claims to possess the third largest stock of practising scientists and engineers. While these figures are impressive and embellish statistical profiles, the real per capita income and quality of life of an individual has not improved significantly. A substantially large part of our countrymen still live below the poverty line, unemployment of even educated is on the increase, the industrial growth has not been able to initiate a revolution and educational system has remained stagnant, unable to produce innovators, scientists and technologists who can strike new pathways.

Looking back into the history, it is clear that India has been particularly fortunate to have a long tradition of science, beginning with the ancient times. The contributions of great teachers of the past, like Aryabhatta, Sushruta, Bhaskara and others were responsible for the growth and understanding achieved in different branches of knowledge such as astronomy, mathematics, medicine and life sciences. However, these developments were not a part of an organised and planned activity as a result of which science and technology did not become an integral part of the mainstream of Indian society. Whereas transition from the ancient Gurukula system to the classroom system did take place, three centuries of colonial rule and the rigid attitudes of our society prevented the society at large from assimilating the fruits of the modern scientific and industrial revolution.

Since the beginning of civilisation, education in this country has been considered as an ornament, an embellishment to an individual and not as a prime requirement for the advancement of a society for solving its basic socio-economic problems. For centuries, we have been taught that simple living and contentment in poverty have a spiritual supremacy over materialistic happiness. High sounding philosophies were quoted, religious scriptures invoked and cultural heritage used to keep men and societies under the shackle of poverty. As Sir M. Visvesvaraya put it, "The religious and fatalistic philosophy has been used to foster our genius for standing still". Even the fact that the basic ethical, social and religious norms, which may be relevant to a particular society at a given time may not be applicable to another society or under different circumstances was forgotten. I am not against either religious teachers or political pundits but only against its corrupt practitioners who have taken unfair and unethical advantage of society to further their own ends. Let me quote Swami Vivekananda, "Religion cannot be purely based on blind belief, it must justify itself by the discoveries of reason through which every other science justifies itself. When science and religion meet and shake hands, we will have the religion of future, a religion which will be for all times and peoples".

The credit of revitalising the scientific tradition in the post independence era, goes to Pandit Jawaharlal Nehru, who translated his basic faith that "Science alone could solve the problems of hunger and poverty, insanitation and illiteracy, of superstition and deadening customs and traditions, of vast resources running to waste, of a rich country inhabited by starving people". To Pandit Nehru, the architect of modern India, whose birth centenary we are celebrating this year, science was not just a tool for economic development, but also a means for emancipation of man. To him scientific temper was the true religion which must percolate to the masses and only then can a stagnant society be qualitatively transformed. His ideas were concretised in the Science Policy Resolution, adopted by the Indian Parliament in 1958, which recognised that :

> "It is an inherent obligation of a great country like India with its traditions of scholarship and original thinking, and its great cultural heritage, to participate fully in the march of science, which is probably mankind's greatest enterprise today".

The spectacular progress made by science and technology in this century such as the release of energy from the atom, the remarkable growth in electronics and biotechnology and human mastery of space for providing practical benefits, offer for the first time a new era of hope to all developing societies. Efforts are continuously on to tap abundant sources of energy such as solar, nuclear, wind, tidal and geothermal available in nature. The discovery in the fields of genetic engineering and biotechnology hold the best promise to improve our agricultural production and livestock. Benefits from space technology, today extend over communication, meteorology, agriculture, education, industrial growth, resource management, environment, disaster mitigation, health and entertainment, thus virtually touching every facet of human life, urban and rural as well as developed and developing.

It must be remembered that the task of providing basic minimal needs of life to the growing population cannot be solved unless the appropriate technology that is best suited for the purpose is employed. While in some areas it may just call for a better bullock cart, in other areas most advanced technologies may have to be employed for achieving rapid progress. The fact remains that over 5.0 billion people residing in the poorer countries of Asia, Africa and Latin America continue to be plagued with problems of malnutrition, hunger, illiteracy, inadequate health care and an abysmally low standard of living. In other words, the basic needs of 80% of the under-privileged world population consuming just about 20% of world's food resources and 10% of mineral resources who are desperately struggling to keep their body and soul together, divided by a poverty curtain from the remaining 20% in the affluent countries, can only be met by judicious application of science and technology.

Technology Assimilation and Cultural Factors

Over the last few decades the progress made in our country in the field of agriculture resulting in the green revolution, overall industrial growth and the developments in the application of atomic energy and space technology have been truly remarkable. Today space technology has revolutionised the communication and TV broadcast in India enabling people even in the remotest corner of the country to become a part of the mainstream of the nation. Specially developed educational programmes and agro-meteorological services can now reach even the poor agricultural worker in a rural area. Space based remote sensing has started providing vital inputs for the management of our agricultural, mineral, environmental, forest, water and soil resources. Innovative uses of space technology for providing emergency communication, rural telegraphy, locale specific disaster warning, search and rescue, have now become a part of our national scene. Efforts are on way to use Space technology for the optimal management of integrated soil-water-biomass resources to enable us to effectively tackle the massive problems of recurrent drought and flood disasters, which continue to bring untold misery to millions of human lives and livestock.

While such substantial progress has been made in several selected areas of science and technology, the overall progress in the application of science and technology to the problems of common man is still inadequate. If the imposed imperialistic colonisation was responsible for the nation's stagnancy for nearly three centuries prior to Independence, why is it that we are unable to make rapid strides since then ? If education in the pre-independence era was only suitable to produce clerks and add to the bureaucracy, what has prevented us from changing the system since then ? The answer lies in the fact that society at large in India is yet to assimilate science and technology into its social and cultural fabric.

Qualitative transformation of any society can only be accomplished, if the society as a whole is able to imbibe the scientific spirit and steadfastly work towards assimilation of technology into its cultural fabric. If development of intellectual resources is the fountain for achieving technological progress, emergence of new technological society can occur only when technology becomes broad-based and gets diffused even to the masses. A primitive technological society cannot absorb post industrial technology without causing violent perturbations in its social and cultural set up. Promotion of lasting socio-economic development, is possible only when locale and culture specific technologies are adopted to meet the needs of individual societies in harmony with their cultural background. Unless the society at large breeds, trains and fosters its scientists and assigns a social priority to the application of science and technology, it cannot flourish. Practical realisation of the benefits from the application of science and technology can only come with the recognition of the challenges posed by the exponential growth of science with the arrow of time. Unless we are willing to take quantum jumps in technology based on sound economic and scientific evaluation, we will fail in our attempt to reverse the prevalent state of scarcity and social structure of inequity in our society.

Education and Self-Reliance

Achievement of self-reliance is the basic foundation stone on which societies can create and intelligently develop technologies. A fast changing technological world requires transformation of education system to make it more purposeful and relevant to suit the requirements of a society to ensure its organic and holistic growth. Are our university teachers who have the total responsibility for building our youth of the future and the universities which "should be a place of light, of liberty and of learning", equipped to produce a society of tomorrow ?

There can be no room except for academic excellence in the universities which are temples of learning, if they have to produce a society of tomorrow. Rigid compartmentalisation of science curricula prevalent in our present day teaching is far from being conducive to the creation of a new generation of excellence. Whether in the basic or in applied sciences, a clear understanding of the interdisciplinary character is vital even to understand and appreciate the cybernetic relationships embodied in scientific and social systems. The remarkable growth achieved in advanced technologies like Space is largely due to the intermingling and cross fertilisation of widely diverse disciplines aided by efficient systems planning and management techniques. Unless the universities are able to continuously adapt their system to meet the present day needs and are able to make the students imbibe a holistic approach, we will continue to produce a large number of graduates who are unable to find a meaningful employment. The time has come for the universities to shift their emphasis and conentrate on producing creators of jobs, rather than seekers of jobs.

Education is a continuing process which does not end at the university level. Rapid technological obsolescence and the need to constantly update one's knowledge, demand supplementing the formal basic education with non-formal continuing education. The communication revolution which has become the harbinger of non-formal education, has emerged as a powerful tool for imparting such non-formal education on a large scale. Communication satellites such as INSAT can be effectively used as a "Teacher in the sky", to supplement the educational system in the universities. We have to realise, to quote Alvin Toffler "The technology of tomorrow requires not millions of lightly lettered men, ready to work in unison at endlessly repeated jobs, not men who take orders in unblinking fashion, but men who can make critical judgements, who can weave their way through novel environments, who are quick to spot new relationships in the rapidly changing reality". In other words, it requires men who have the future in their bones. The solution to the problem of mass education is not just linear expansion of facilities but must include innovative systems, if the nation has to smoothly transition to the next century.

Industry Interface

Development of any country is dependant on the adoption of a holistic approach to ensure that the results of scientific and engineering research find their way into industrial production to meet the requirements of the society at large. The total spectrum of activity required for achieving this objective encompasses a large cycle which includes basic research, applied aspects, product design, process development, large scale production, quality control, marketing and management with built in closed loop feed back correction mechanism at each stage.

Prevailing education system of engineers even in the industrial countries has been seriously questioned as to its adequacy to meet the demand of the fast growing technology in a competitive world. The educational system in the developing countries with its age old rigid tradition, requires a fundamental change in its outlook, if the engineering graduates of the present day are to play their rightful role in the society. A closer interaction between academic institutions and industries, working together in partnership is imperative to overcome the existing lacuna. Familiarisation with the industrial atmosphere must necessarily become a part of the educational requirement. Only then we will succeed in producing competent T shaped engineers of the future, engineers who while seeking their own subject in depth as specialists, do so in the global context of a broad spectrum of activity to which they can effectively contribute. The lack of inner strength and interaction with academic institutions has made Indian industries to continue to rely on outside know-how for all time to come. Universities and institutions, on the other hand have yet to appreciate the relevance of time bound and practical oriented research programmes. What is needed is to ensure a sound organic link between the academia and the industries.

Science & Peace

Improvement of quality of life for the vast majority and ushering a new era in which all societies enjoy an equitable share in the fruits and benefits of technological progress is possible only if science and technology is used for peaceful development. The very survival of the society of today and of tomorrow depends on active promotion of the use of science and technology for the benefit of humankind. The environmental pollution due to indiscriminate use of technology, unrestricted use of energy, large scale release of carbondioxide, aerosols and other pollutants into the atmosphere, even the indiscriminate use of nitrogeneous fertilizers can lead to irreversible ecological imbalances through the violation of both natural physical laws and cybernetic relationships in nature. Even more frightening is the deliberate pile up of nuclear weapons and perfection of chemical and biological warfare methods including genetic manipulation. Star war scenario using destructive weapons from space has added a new dimension which threatens to wipe out the entire bio-system on this planet. Each time a new weapon of greater destructive capability is discovered, its inventors soothe their conscience with the belief that such destructive power will finally make war impossible. Thus the argument has always been advanced for discovering more destructive weapons in the name of peace. National imperialistic interest has become a force stronger than humanity, itself. The true perspective lies in the recognition of the basic fact described beautifully by Dr. S. Radhakrishanan "if science is perverted from its natural purpose and is used for private profit and public destruction, if the political world is anarchical, if scientific weapons are used for destruction and human slaughter elevated into a cardinal centre, it is not the fault of science". The challenge of our time lies in the basic recognition of achieving reconciliation between science and wisdom in a vital harmony lest we turn this magnificent planet of ours into a dead planet, a black hole.

Conclusion

You will be living in a period where technology will be changing even faster and the rate obsolescence will be greater. However, given the political will and support, I have no doubt that the young scientists and technologists of this country can assist in the ushering of a new era of hope and abundance for the millions of people who are yet to realise the minimal needs of survival. What is needed is to substitute the inferiority complex developed through centuries with courage and hope, scientific rationale and logical reasoning. As Prof. C.V. Raman said "what is needed in India today is the destruction of the defeatist spirit. We need a spirit of victory, a spirit that will carry us on to our rightful place under the Sun. A spirit which recognise that we as inheritors of proud civilisation are entitled to a rightful place on this planet. If that indomitable spirit were to arise, nothing can hold us from achieving our rightful destiny".

Modernizing University Administration

(*Continued from page 5*)

Conclusion

University administration is undergoing a sea change. A change in environment, outlook towards education, rapid developments in the field of educational technology, science, managerial and administrative practices demand a modern approach to resolve the problems of university administration. It is felt that to be effective a university must innovate continuously. New ideas are to be generated and experimented upon. This needs a dynamic leadership at all levels and hierarchies of university administration. Above all, the Vice-Chancellor besides being an accomplished leader of his academic colleagues, has to become a successful entrepreneur willing to take risks to adopt new ideas. A dynamic leader, a dedicated and committed team of administrative officers supported by effective management processes and flexible organization structures will help university administration to achieve new heights. A university with responsive personnel will always prove to be an effective instrument in solving educational and socio-economic problems of the society.

University-Industry Collaboration

The University - Industries Collaboration Cell of the Bharathidasan University recently organised a Seminar on University-Industry Collaboration. The University and the Industry were represented by 20 members from each sector. At the two Technical Sessions, papers by Industrialists and Professors were read and discussed.

Dr. S. Muthukumaran, Vice-Chancellor, Bharathidasan University, presided over the inaugural function. In his address Dr. Muthukumaran said that the State Government had decided to set up an Information Centre for Technology Transfer and it was necessary to take stock of the University's potentials as well as the Industry's requirements to work out the modalities of University-Industry interaction. It was also necessary to be clear about the nature of help the University expected from Industry and vice versa. He was confident that once these were enunciated in specific terms, the projects could be taken up to bring to the public the benefits of the cooperation between University and Industry.

Dr. Muthukumaran said that the tendency to opt for foreign technology instead of indigenous one should be discouraged. Though it was true that importing technology from foreign countries saved us the time in developing the same indigenously in our country, this led to a lack of trust in the local expertise. He wanted wide and effective publicity be given to the research programmes in the country.

Mr. S. Manavalan, General Manager, Ordnance Factory, Tiruchirapalli, who inaugurated the seminar, advocated integrated thinking in our plans to achieve our social objectives. He wanted the scientific knowledge available in the country be translated into socially useful activity. He hoped that the University-Industry Collaboration Cell could be an effective interface between Industry and University and bring about useful ventures for the common good of the people.

Mr. P. Narasinga Rao, General Manager, Tiruchy Distilleries and Chemicals Limited, Tiruchirapalli, referred to the salient features of his company's structure and elaborated on the problem of pollutants especially the effluent water from the Distillery. He hoped that the University Industry interaction would pave the way to make Tiruchirapalli a zero pollution zone.

Dr. K. Chellappan, Professor and Head, Department of English, Bharathidasan University, described Education and Industry as the two forces of a living dynamic society. While education seeks knowledge, industry produces wealth. There can be no real progress in industry unless it is recharged with new concepts. Similarly knowledge becomes full when it is applied, humanised and socialised. He hoped that the University-Industry collaboration will benefit each other as knowledge needs socialisation and industry some form of illumination from research.

Mr. V. Gopalakrishnan, Senior Manager, BHEL, Tiruchirapalli emphasised the need for active cooperation between industries and educational institutions. He recommended practical training for Engineering students in various industries, setting up Industrial Consultancy Centres in Engineering Colleges and making jobs in industries and educational institutions equally attractive to facilitate deputation of engineers from industries to colleges on a short-term basis. He also advocated the setting up of a Chair in an established educational institution by industries for carrying out high quality research in specific areas.

Dr. M. Krishna Pillay, coordinator, University-Industries Collaboration Cell, Bharathidasan University, said that the interaction can be on two levels—decision about University products i.e., students and consultancy service dealing with research projects of mutual interest.

Dr. R. Vasudevan, Director, Bharathidasan School of Energy detailed several projects undertaken by the School to solve the problems faced by industries. He suggested that the University should get funding from Central Agencies for working on problems directly related to energy because these problems were not the concern of a particular industry but the concern of everyone living in this world.

Mr. S. Sridharan, Secretary, Small-Scale Industries Association, Tiruchirapalli, felt that the University with its band of scholars, had the potential to give the proper direction to the scientific and technological world. He also highlighted the special position of the small scale industries and argued that only when the problems of the small scale industries were taken up for research can there be a qualitative change in the large industries.

The following recommendations were made for strengthening Unisity Industry Cooperation.

(1) Wide publicity may be given to the work done in the University and the Industry, through a bulletin issued periodically.

(2) Practical training to Engineering and Science students may be provided in the industries.

(3) Consultancy centres may be set up in Engineering and other colleges. The centres should be equipped and encouraged to undertake consultancy jobs which are not routing but which involve research and which will fetch revenue to the institution individually compensating for the effort put in by the faculty.

(4) Jobs in industries and educational institutions should be made equally attractive so that muutal transfers are possible.

(5) A survey of the needs of small scale industries in Bharathidasan University area may be undertaken.

(6) A Service centre/Testing centre may be established for the benefit of small scale industries.

(7) Projects on specific problems in the small scale industries may be undertaken by Postgraduate and Research scholars for their degrees.

(8) Chairs may be established in academic institutions by industrial organisations to carry out high quality research.

(9) Research scholars and Professors may be enabled through a programme of 'Residence-in-industry' to study the working of the industry in a realistic manner.

(10) Exhibitions of innovations should be arranged periodically to create the much needed awareness of the University's potentiality among the people.

Principals Consultation on Autonomy

Prof. K.V. Ramana, Vice-Chancellor Andhra University, presided over a Consultation of Principals of Autonomous Colleges of Andhra Pradesh held at St. Theresa's College for Women, Eluru on 5th March 1989. In his Presidential address, Prof. Ramana stressed that the New Education Policy visualised 500 Colleges becoming Autonomous within a few years. This would lead to a more fruitful relationship between the colleges and the universities. He emphasized that Autonomy demanded greater responsibility and hard-work from the Staff and students, and Andhra University expected Extension service and Field work to be taken up by the Autonomous Colleges as an integral part of the curriculum. He stated that each College would have to build up its own credibility and assured every possible support in this regard.

Dr. Rajammal P. Devadas, Vice-Chancellor of Sri Avinashilingam Home Science College, Coimbatore delivered the Keynote address. She pointed out the objectives of autonomy as higher standards in education, Accountability and National Integration. She called for more relevant courses. She suggested certain ways to overcome resistance to autonomy like meetings with parents, maintenance of accurate records, etc. She emphasized that the success of autonomy will depend upon the commitment and motivation of the Principal and the Staff.

At the Students Panel conducted by 8 students of St. Theresa's College, introduction of Restructured courses and Diploma courses, the problems of migration of the students, increase in the Teaching Work load and reduction of the Practicals Session to two hours were discussed.

In the group discussion session the Principals and the Senior Staff discussed the topics of Extension work, Evaluation and Syllabi. This was followed by a Panel Discussion on Colleges and Industry/Business where suggestions like the need for developing Entrepreneurs, practical skills and more relevant courses were made.

Friendship University to Collaborate for Peace

Prof. Ramlal Parikh, Vice-Chancellor of Gujarat Vidyapith and Shri Alexandre A. Ivanov, Vice-Chancellor of the Patrice Lumumba People's Friendship University of the USSR signed an agreemenl on 'Scientific & Cultural Co-operation' between the two Institutions with the aim of establishing a nuclear weapon-free non-violent society. Speaking on the occasion Prof. Ramlal Parikh stated that this was a unique understanding between two value-oriented universities. This understanding is the first effort to collaborate on translating in action, the principles of Delhi Declaration on Nuclear Weapon free and Non-violent World. This required community-building at Micro-levels and resort to Community Education at grass-roots will pave the way for ultimate global transformation. The co-operation envisaged in the agreement is as follows :

(i) To undertake in-depth study of Delhi Declaration, to exchange scientific publications and to carry out scientific research on peace and non-violence.

(ii) Exchange of Scholars, delegation, to organise conferences, symposia on related topics.

(iii) To study and research on Values propounded by Mahatma Gandhi and Leo Tolstoy, and to make an in-depth study of their letters and writings.

(iv) Promotion of Russian language in the Gujarat Vidyapith and of Hindi in the Patrice Lumumba People's Friendship University.

The agreement which is signed for five years during which both sides will publish monographs in Russian and Indian languages with special reference to achieving nonvoilent society.

Dr. Ivanov, the Rector and Professor of the Scientific Socialism at the Patrice Lumumba People's Friendship University, stated that there was no alternative to work for Peace and Nonviolence to ensure the welfare and survival of mankind all over the World. The agreement, he said, was based on pursuit of educational, human and spiritual vulues.

Nehru—Law & Social Change

The Vice-Chancellor of Aligarh Muslim University, Syed Hashim Ali said that Pt. Nehru was deeply impressed both by liberalism and marxism, but his political strategy consisted of embracing no 'ism' except pragmatism. He was delivering the presidential address at the three-day National Seminar on 'Nehru—Law and Social Change' organised by the Faculty of Law. Mr. Ali said that Pt. Nehru was the only doyen to have effectively used laws as an instrument of social change and his deep commitment to human values was a guiding star in our voyage to a better society.

In his keynote address, Prof. S.K. Agrawala, Secretary, Association of Indian Universities (AIU) said that Pt. Nehru made significant contributions to the secular character of Indian Society as well as planned development. He said that one of the greatest achievements of Jawaharlal Nehru was to combine law with social planning and get excellent results.

Referring to the recent Supreme Court Judgement aimed at stopping deforestation and lime-stone quarrying in Doon Valley as well as pollution in Gangas, Prof. Agrawala said that this came slowly due to environmental policies laid down by Nehru more than two decades ago.

In his welcome address, Prof. M. Zakaria Siddiqi, Dean, Faculty of Law said that Nehru had great confidence in the constituent Assembly and the Parliament to transform a highly fragmented, cast-ridden, unequal and poverty ridden society into a modern scientific, egalitarian, economically viable and forward looking society.

More than sixty delegates from all over the country participated the seminar.

We Congratulate . . . .

1. **Dr. Navin Chandra Nigam who has taken over as Director of the Indian Institute of Technology, Delhi.**
2. **Dr. Manmohan Singh who has been appointed Vice-Chancellor of the Punjabi University, Patiala.**

AIU News

Gautam gets Ph.D.

Mr. Gyan Prakash Gautam, Sports Officer in the Association who had submitted the thesis, "A study of effectiveness of games and sports as related to the development of high school students personality, attitudes and values" has been declared eligible for the award of the Ph.D. degree in Education of Meerut University. Shri Gautam conducted his research under the guidance of Dr. R.P. Bhatnagar, formerly Professor, Head and Dean, Faculty of Education, Meerut University.

Mr. G.P. Gautam

News from Agril. Varsities

TNAU to Strengthen Extension Education

The twenty-sixth meeting of the Extension Education Council of the Tamil Nadu Agricultural University was held on 2.3.1989 at Coimbatore under the Chairmanship of Dr. S. Jayaraj, Vice-Chancellor of the University. The Director of Oilseeds, Director of Horticulture and Plantation Crops, Additional Director of Agriculture, TANCOF, officials of the different developments of the state, heads of various TOT centres of the Tamil Nadu Agricultural University and special invitees of the research and extension council meetings participated.

Dr. Jayaraj in his introductory remarks outlined the extension education activities of Tamil Nadu Agricultural University and recent accomplishments made under extension education. He enumerated recent innovative activities of the Unlversity such as Agricultural Information Service, Students Counselling and Placement Centre, Farmers Reception Room, Video Production Unit, Seithi Madal, Valarum Velanmai, collaborative activities of the University with agriculture and other developments, strengthening of the linkage with media, review of the need for further strengthening of the above activities.

The Vice-Chancellor also explained about the proposed thrust areas identified by the Tamil Nadu Agricultural University to revamp the extension education activities. These included starting of new Communication Centre in other campuses and research stations; a separate unit for journalism; Plant Health, Soil Health and Animal Health Centres; strengthening of video production unit with training component; special emphasis on training to weaker sections, handicapped persons, tribals etc; organising large scale block demonstration programmes; motivating the women farmers in the extension programmes; strengthening Valarum Velanmai, Seithi Madal as innovative print media; and improving extension in needed areas like rainfed areas, watershed management agricultural extension.

During a review of the TOT Centre the Vice-Chancellor emphasisd the need for further strengthening of extension activities in disciplines such as Agricultural Engineering, Water Technology, Post Harvest Technology, Bio-Technology,Soil and Crop Management Studies, etc.

The Extension Education Council resolved on some important projects as under :

* More efforts to popularise agricultural implements fabricated by the University through demonstration be taken up.

* Preparation of a catalogue containing the details of all equipments and implements produced by the College of Agricultural Engineering indicating their availability, price etc., may be done.

* Revival of scientists and students core to visit villages during cropping season and arrange help and advise.
* Mass literacy programme may be taken up in order to educate the illiterate farming community.
* Vocational training programmes may be organised for the benefit of school teachers who are engaged in agriculture.
* Training for farm women may be conducted at the village itself in order to increase their participation in agriculture.
* The number of training programmes and other extension activities of the Poultry Research and Development Centres may be increased.
* Efforts may be made to organise more number of extension education activities on intergrated farming systems approach.
* Efforts may also be made to test and verify the yield potentialities of the new varieties of the University by conducting regular on farm research programmes.

HAU Hosts Sociological Conference

Inaugurating the 19th All India Sociological Conference, Dr. Har Swarup Singh, Vice-Chancellor, Haryana Agricultural University, said that the time had come when we must realise the importance of social sciences in the planning process at the national level because there was hardly any sector of national development which could be steered towards proper developmental objectives without the help of social scientists. He observed that in agricultural planning, sociology, agricultural economics, and other subjects closely related to social and cultural change have not so far been given their proper planning process.

Referring to economic and so- al change, Dr. Singh said we had sumed that economic change ould automatically usher in social ange. But this had not happened. dustrialisation had brought con- ntration of wealth in the hands f a few, green revolution had be- efited only the bigger farmers. The umber of people below the po- erty line had increased in spite of he best efforts of the planners; literacy had gone up; there had een an increase in the number of ropouts from schools; even funda- entalism had increased and com- unal riots, violence and other ocial evils were on the upswing. hey were all manifestations of the ocial malaise which needed to be tudied and corrected, he observed.

In his presidential address Shri rij Raj Chauhan said that socio- gical efforts at studying the rural tuation had yielded fruitful con- epts for being incorporated in the ody of the sociological enterprise. olitical developments in the coun- ry had generated new forces even in egard to rural questions. In a state ke Haryana, the kisan belonged o the establishment and state poli- ies had taken care of them. In ther states, the farmers were seek- ng a place for themselves. The wo situations provided ample cope for comparative study by the ociologists, he added.

IAUA Meets at Trivandrum

The Sixteenth Convention of e Indian Agricultural Universities ssociation (IAUA) was recently eld at Trivandrum. It was agreed t the convention that the concept f rural development connotes the verall development of rural areas ith a view to improving the qua- ty of life of the people living in llages. It is a comprehensive and ulti-dimensional concept which compasses the development of griculture and allied activities, socio-economic infrastructure, community services and facilities, and above all, the human resources in rural areas.

A review of the attainments of the State Agricultural Universities (SAUs) revealed that they had indeed made substantial contributions in the development of Agriculture and allied sectors—Animal Husbandry, Poulty, Horticulture, Forestry, etc. However, in the other facets of rural development, the involvement of the Agricultural Universities has remained limited. It was felt that the SAUs, with their infrastructure and programme are now at a stage when their activities can be extended to other aspects of rural developnent, such as, agro-based/small scale industries, post-harvest technology, food processing and marketting, rural energy, rural housing, rural health and sanitation, and other programmes aimed at socio-economic and cultural advancement of rural communities with a view to improving the quality of life. In this context, the question of future involvement of the SAUs in the rural development programmes was discussed and the following recommendations emerged :

(1) The State Agricultural Universities have a clear mandate for increasing production in Agriculture, Animal Husbandry and allied sectors, and for improving rural economy, which forms the basis for any rural development programme.

(2) Further generation of knowledge and planning for rural development should be important functions of the State Agricultural Universities. Hence, the programmes of teaching, research and extension education need to be reoriented with these objectives in view. To the extent possible, this should be implemented by redevelopment of the present resources.

(3) The involvement of the Agricultural Universities in the rural development programmes ought to be through collaboration and/or effective linkages with the Government departments/officials as well as non-official organisations and institutions engaged in rural development activities.

(4) Inter - disciplinary forums (termed, for example, as the "Centre for Rural Development Studies") may be set up in the SAUs to function as nuclei for conceptual and analytical investigations, perspective planning and formulation of specific strategy for rural development.

(5) The Convention took note of the Government proposal for setting up of Rural Institutes and recommended that, as far as possible, such institutes should function as part of the SAUs. Wherever that is not feasible, Rural Institutes should be located in close proximity of the SAUs and the SAUs should be represented in the various management and academic bodies of such institutes.

(6) Extension programmes of the universities need to be strengthened with a view to disseminate relevant technologies through development agencies.

(7) The increased role envisaged for the SAUs in rural development refers to the strengthening of the disciplines and fields of studies having a bearing on rural development, such as, environment and resource management, non-conventional sources of energy as well as the social science disciplines like Agricultural Economics, Rural Sociology, Statistics, etc.

News from Abroad

Kenya : Goodbye to Free University Tuition

Kenya is reported to have decided to abandon its system of free university education in July with the introduction of student fees. The change is one element of a strategy for education and training in the next decade. Announcing the decision, President Daniel Arap Moi assured Kenyans that the programme would affect only those who were capable of paying fees. The current university loans scheme for needy students will continue to operate. County councils and district development committees will be involved in identifying those incapable of footing the bills.

The introduction of university fees was something that Kenyans had been waiting for since the government decided to expand the sector, which now has 26,000 undergraduates and 1,500 postgraduates. The government had instituted an education reform commission under the chairmanship of a former administrator, Mr. James Kamunge, whose recommendations were selectively adopted by parliament late last year.

Details of the amounts to be levied have been left to the ministry of education and the joint university council. As outlined by the Kamunge report, parents should anticipate paying more than £600 a year for books, hostel accommodation and other personal expenses if their sons and daughters are to live in the university hostels. The government will continue meeting the tuition costs of all local students.

The government proposes to reorganize the loan system for students. It has been suggested that the commercial bank should be given the mandate of giving loans to the students. Although the government would secure and guarantee the loans, the banks will take the responsibility of collecting students dues with interest.

Another alternative for funding of higher education has been put forward by the chairman of Kenyatta University, Mr. Philip Ndegwa, who has persistently said that the private sector, a major beneficiary of tertiary education, should come forward and give support. Big firms and government parastatals could inject funds to the system by sponsoring outstanding students whom they can employ later.

Craig bids Adieu

Mr. Tom Craig, Deputy Secretary General of the Association of Commonwealth Universities (ACU) retires on 31 March 1989 after 40 years' distinguished service.

Mr. Craig, now 63, joined the staff of the Association of Universities of the British Commonwealth, the predecessor of ACU, in 1949. He became Assistant Secretary General in 1985. He made an outstanding contribution to the growth and strengthening of the Association during his years in office and travelled widely within the Commonwealth, visiting more than 180 universities, to stimulate and maintain the universities' interest in the ACU and its work. As Head of the Publications and Information Department he was Editor or Joint Editor of 38 editions of the reputed **Commonwealth Universities Yearbook**, a unique source of information about the universities of the Commonwealth used world-wide, and of some 20 other ACU publications, and fostered a continuous expansion of this area of the ACU's activities. During his service, the Association's membership grew from 68 to 329 today.

On Tom Craig's departure, Miss Eileen Archer becomes Director of Publications and Information and Editor of the **Yearbook**. She joined the ACU in 1961 and has since 1985 been Assistant Secretary General (Publications and Information).

Mr. Tom Craig and his successor Miss Eileen Archer

News from UGC

INSAT-1B Programme of UGC

Between 8th April to 15th April, 1989 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV Network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

8.4.89

"Interior Decoration—III"
"Actor's Face as a Canvas"
"Shadow Puppet Making"

9.4.89

No Telecast

10.4.89

"Classical Mechanics—II"
"Galileo's Principle Relativity—B"
"Reasons of Poverty in India"
"The Fight Against Hunger—A New Species of Bean"

11.4.89

"Educational Technology—The Teleteacher—II"
"Food Preservation—II"
"Women and Anamia"

12.4.89

"Future of Atomic Power Industry"
"Links With Our Past"
"Desert Bats"

13.4.89

"Special Programme on Visveswarayya Birth Day"
"Introduction to Computer—II"
"Secrets of Greenland Ice"

14.4.89

No Telecast

15.4.89

"The Inner World"
"Maru Se Sagar Tak"
"The Secrets of Stradivarius"

UGC Launches Tele-Courses

The University Grants Commission (UGC) has launched a scheme of production of tele-courses in 15 identified major subjects in Sciences and Social Sciences disciplines for Undergraduate students. These subjects include Physics, Chemistry, Mathematics, Zoology, Botany, Computer Sciences, Geography, Political Science, Home Science, Economics, Commerce, Sociology, Philosophy and Psychology. 15 Subject Co-ordinators in various disciplines have been appointed to organize the production activities. Each Subject Co-ordinator is assisted by an editorial board consisting of 4-5 subject experts to identify outstanding teachers to prepare model course material in each subject. Each paper in a subject will comprise a course of 40 lectures by two or three suitable teachers.

The objective of the tele-course programme is to make available the benefit of the good lectures by distinguished teachers to the colleges located in the rural areas. Under the programme, lectures by these teachers, interspersed with suitable slides and charts will be recorded on video cassettes. These video cassette records containing course material will be distributed to all colleges which are expected to maintain video libraries to facilitate the students to select and view such programmes. The video libraries are also likely to have the facility of computers to make use of the information system effectively.

Video recording of lectures will be done at the Educational Media Research Centres (EMRCs) and Audio Video Research Centres (AVRCs) established by UGC at New Delhi, Jodhpur, Ahmedabad, Pune, Srinagar, Roorkee, Calcutta, Hyderabad and Madras. Two more centres at Patiala and Imphal are proposed to be set up soon. In other cities where the media centre facility is not available recording will be done by hiring local professionals. The Subject Co-ordinators have been advised to identify executive producers for co-ordination of the production activity.

Sports News

Vizzy Trophy Tournament

Vizzy Trophy tournament for the Zonal Championship of the Universities was hosted by the Andhra University at Waltair from 21st to 28th February, 1989. In the semi-finals played on 21-23 February, 1989, North Zone beat East Zone and West Zone beat South Zone. In the final, North Zone defeated West Zone. The scores in the final were as follows :

North Zone—Ist Innings : 500 Runs off 143 overs
IInd Innings : 324 Runs off 96 overs
West Zone—Ist Innings : 252 Runs off 63 overs
IInd Innings : 104 Runs for 3 Wickets off 27 overs

Sanjay Sharma of North Zone who scored 269 runs in the first innings was adjudged the best while Anil Acharya who scored 113 runs put in commendable performance for the West Zone.

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month', while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research Scholars and students of education are welcome to use these resources. The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Sociology

1. Ahluwalia, Rachna. *Professionals in the making : A sociological study of medical students in Medical College, Rohtak.* Panjab. Dr. (Mrs.) K.P. Singh, Prof., Department of Sociology, Panjab University, Chandigarh.

2. Dubey, Radha. *Sagar Nagar ke vibhinn Brahman samudaya ke parivaron ka sanrachnatmak evam prakaryatmak adhyayan.* HS Gour. Dr. Divakar Sharma, Lecturer, Department of Sociology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

3. Nalin Ranjan. *Discontent, resistance and social movement : A contemporary movement in Baliapal. Orissa.* Panjab. Prof. P.N. Pimpley, Department of Sociology, Panjab University, Chandigarh.

4. Sharma, Madhavi Lata. *Nagariya parivesh mein Dr. Ram Manohar Lohia ke samajik vicharon ka tathyatmak mulyankan.* HS Gour. Dr. Shrinath Sharma, Lecturer, Department of Sociology. Dr. Harisingh Gour Vishwavidyalaya, Sagar.

5. Thakur, Savita. *Changing village economy and status of women : A comparative study of villages in Himachal Pradesh having relatively subsistence and market oriented economies.* Panjab. Prof. A. Mahajan, Department of Sociology, Panjab University, Chandigarh.

6. Vij, Monika. *Reservation for scheduled castes in professional colleges in North-West India : A sociological appraisal of some issues.* Panjab. Prof S.L. Sharma, Department of Sociology, Panjab University, Chandigarh.

Political Science

1. Onyemauche, Okere Jonathan. *Non-alignment and nuclear disarmament.* Panjab. Dr. K.K. Pathak, Department of Political Science, Panjab University, Chandigarh.

2. Rajendran Nair, V. *Industrial relations and multi unionism in the K.S.E.B.* Kerala. Dr. D. Jayadevadas.

3. Ramalakshmi, K. R. *Gandhi and the Indian revolutionaries, 1915-1935.* Panjab. Dr. (Mrs.) Sandhya Chaudhary, Department of Gandhian Studies, Panjab University, Chandigarh.

4. Rupinder Kaur. *The challenge of surveillance of Indian Ocean : Geopolitics of Super Power Proxy.* Panjab. Prof. M.M. Puri, Department of Political Science, Panjab University, Chandigarh.

Economics

1. Gurmail Singh. *Rural poverty in post-green revolution in Punjab : A household level study.* Panjab. Dr. H.S. Shergill, Reader, Department of Economics, Panjab University, Chandigarh.

2. Suvrathan, P.I. *Export competitiveness : An analysis with special reference to India's machine tools exports.* HP. Dr. L.R. Sharma, Department of Economics, Himachal Pradesh University, Shimla.

Public Administration

1. Jodh Singh. *Green revolution in Punjab : Efficiency and equity.* Panjab. Dr. B.S. Ghuman, Department of Public Administration, Panjab University, Chandigarh.

2. Ogbonna, Orji Paul. *Organisation and management of the Central Board for the Prevention and Control of Water Pollution.* Panjab. Prof. Satya Deva, Department of Public Administration, Panjab University, Chandigarh.

3. Sudarshan, Abha. *An analysis of the management of public relations in the Government of Punjab.* Panjab. Dr. (Mrs.) Shyama Bhardwaj, Department of Public Administration, Panjab University, Chandigarh.

Education

1. Bajwa, Sukhwant. *The efficacy of mastery learning strategy in the acquisition of geometric concepts among IX grade students in relation to intelligence, socio-economic status and cognitive style.* Panjab. Prof. J.N. Joshi, Department of Education, Panjab University, Chandigarh.

2. Chukwu, Oku Christopher. *Perception and expectation of students, teachers and the community regarding the functions of a University in India : A base for developing a successful role theory.* Panjab. Prof. (Mrs.) B.K. Saini, Department of Education, Panjab University, Chandigarh.

3. Donald, Agbalizu Mac. *Leadership behaviour of the secondary school principals as perceived by self and teachers in United Arab Emirates.* Panjab. Dr. (Mrs.) I.P. Sharma, Department of Education, Panjab University, Chandigarh,

4. Kuha, Ariya. *The effect of certain home-room activities on the creative behaviour of higher secondary school students.* Panjab. Dr. (Mrs.) Asha Mohan Sethi, Reader, Department of Education, Panjab University, Chandigarh.

5. Mekuria, Tassew Zewdie. *Classroom verbal behaviour of teacher-trainees in Ethiopia in relation to their intelligence, self-concept and attitude towards teaching.* Panjab. Dr. (Mrs.) Asha Gupta, Lecturer, Department of Education, Panjab University, Chandigarh.

6. Nguli, Micah Nzomo. *The effect of national youth service training on socio psychological personality dimensions of problem students in the universities of Kenya.* Panjab Dr. (Mrs) Pushpa Chaudhary, Lecturer, Department of Education, Panjab University, Chandigarh.

7. Ochul, Ochui Donatus. *A study of administrative problems as perceived by principals of secondary schools in Cross River State of Nigeria.* Panjab. Dr. (Mrs). Savita Markanda, Lecturer, Department of Education, Panjab University, Chandigarh.

8. Shukla, Brij Rani. *Effectiveness of the activity centred curriculum in the acquisition of process skill and development of self concept in relation to cognitive style among high school students.* Panjab. Dr. G. S. Sodhi, Reader, Department of Education, Panjab University, Chandigarh.

9. Suwanasri, Nitaya. *A study of the effectiveness of Tanya's inset programme in terms of teaching competence and students' achievement.* Panjab. Dr. G. S. Sodhi, Reader, Department of Education, Panjab University, Chandigarh.

10. Umjuntorn, Orrachorn. *Participation of high school students in sports and their need achievement, as related to the attitude of parents towards physical activity and family sports environment.* Panjab. Prof. (Miss) J. Bhullar, Department of Physical Education, Panjab University, Chandigarh.

11. Virinder Singh. *Effects of interval and circuit training on the selected physiological variables and motor fitness com-onents of school boys at high attitude and plains.* Panjab. Dr. Ajmer Singh, Director, Department of Physical Education, Panjab University, Chandigarh.

12. Walia, Navleen Kaur. *The psycho physical development of environmental-at-risk children with and without pre school education.* Panjab. Dr. (Mrs) Tehal Kohli, Reader, Department of Education, Panjab University, Chandigarh.

13. Wogu, Eziaku. *Vocational maturity of secondary school students in IMO State, Nigeria in relation to their self concept, achievement motivation and internal-external control of reinforcement.* Panjab. Dr. (Mrs) Asha Gupta, Lecturer, Department of Education, Panjab University, Chandigarh.

Commerce

1. Joginder Singh. *Working of security market in India.* HP. Dr. Bal Krishan, Department of Commerce and Business Administration, Himachal Pradesh University, Shimla.

2. Marwah, Reena. *The catalytic role of the World Bank and its Constituent Agencies in India's economic development.* HP. Dr. Preeti Singh, and Dr. Kulwant Singh Rana, Department of Commerce and Business Management, Himachal Pradesh University, Shimla.

3. Pushpa, S. *Workers participation in management in Kerala.* Kerala. Dr. C.N.P. Nair, Prof. and Head, Department of Commerce, University of Kerala, Trivandrum.

4. Sharma, Rakesh. *Impact of economic planning on tribal development in Himachal Pradesh.* H.P. Dr. M.K. Sharma, Department of Commerce and Business Management, Himachal Pradesh University, Shimla.

Home Science

1. Trivedi, Sharda. *Navodaya Vidyalyon ke vidyarthiyon ke mulyon rashtriya ekta ke prati unki abhivritti sharirik vikas evam unki shaikshnik uplabdhi ka adhyayan.* Devi Ahilya. Dr. (Smt) Kamlesh Sharma, Prof. Department of Home Science, Govt. New Girls Degree College, Indore.

HUMANITIES

Philosophy

1. Dhiman, Naresh Kumar. *Contribution of Ganga Prasad Upadhyaya to the exposition of Indian philosophy.* Panjab. Prof. B.L. Bhartiya, Department of Dayanand Chair for Vedic Studies, Panjab University Chandigarh.

Fine Arts

Music

1. Gurpreet Kaur. *Dr. Lalmani Mishra kee sangitatmakta ka parisheelan.* H.P. Dr. Indrani Chakravarti, Department of Preforming Arts, Himachal Pradesh University, Shimla.

Language & Literature

English

1. Bhargava, Nidhi. *Imagery and symbolism in T. S. Eliot's poetry.* HS Gour. Dr. C. Sengupta, Reader, Department of English, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

2. Kusum. *Synaesthetic imagination in S. T. Coleridge and Edgar Allan Poe : A study in comparison and contrast with reference to some of their major poems.* Panjab. Dr. D.C. Saxena, Department of English, Panjab University, Chandigarh.

3. Luthura, Neelam. *An analysis of the influence of mother tongue in the pronunciation of English at 10+2 level in the schools of Haryana and the educational implications for teaching of pronunciation in class room situations.* Panjab. Dr. (Mrs) Pushpinder Syal, Reader, Department of English, Panjab University, Chandigarh and Dr. J. Sethi, Central Institute of English and Foreign Languages, Hyderabad.

4. Malik, Lalita Rani. *A socio linguistic studies of Hindi English code switching in Indian English.* Panjab- Dr. (Mrs) Pushpinder Syal, Reader, Department of English, Panjab University, Chandigarh.

5 Mathew, Antony. *The verb pattern systems in the Oxford Advanced Learner's Dictionary of current English and the Longman Dictionary of Contemporary English.* Kerala. Dr. Elias Valentine, Reader, Department of English, University of Kerala, Trivandrum.

6. Pandey, Lakhan Lal. *Social morality in the fictional world of Khuswant Singh.* HS Gour. Dr. A.K. Awasthi.

7. Rao, Vijay Laxmi. *Imagery in the poetry of William Blake and Dylan Thomas : A comparative study.* HS Gour Dr. C. Sengupta, Reader, Department of English, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

8. Salahudeen, M. *A study of the causes of under achievement among the learners of English at the pre-degree level and suggestions for remedial measures.* Kerala. Dr. Elias Valentine, Reader, Department of English, University of Kerala, Trivandrum.

9. Sumedha. *An analysis of style and language in Vikram Seth's the Golden Gate.* Panjab. Dr. (Mrs) Pushpinder Syal, Reader, Department of English, Panjab University, Chandigarh.

10. Thomas, N. A. *Learning of English as a second language by S.C./S.T. groups : An Indian case study.* HS Gour. Prof. R.S. Pathak, Reader, Department of English, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

11. Varghese, P.V. *Prepositions in English and post positions in Malayalam.* Kerala. Dr. Elias Valentine, Reader, Department of English, University of Kerala, Trivandrum.

12. Verma, Maninder Kumar. *A critical study of the concept of objectivism as reflected in the novels and non fictional works of Ayn Rand.* HS Gour. Dr. H.S S. Bais, Lecturer, Department of English, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

13. Vishav Mohini. *Moral vision in the novels of Nayantara Sehgal.* Panjab. Dr. Kiran Sahni, Reader, Department of English, Panjab University, Chandigarh.

14. Wahi, Anu. *Symbiotic relations : Man and nature in Rousseau, Wordsworth and Whitman* Panjab. Dr. D.C. Saxena, Department of English, Panjab University, Chandigarh.

Sanskrit

1. Sharma, Lekh Raj. *Purushottam Dev krit bhashavritti ka vivechanatmak evam tulnatmak adhyayan.* Panjab. Dr. Ghanshyam Uniyal, Reader, Visheshvaranand Vishwa Bandhu Institute of Sanskrit and Indological Studies, Panjab University, Hoshiarpur.

2. Sharma, Narender Kumar. *Sanskrit vangmai mein shabd-tattva ka vivechan.* Panjab Dr. Ramakant Sharma Angiras, Department of Sanskrit, Panjab University, Chandigarh.

3. Sharma, Sandhya Parkash. *Kalidasakrit jyotirvidabharanam ka sameekshatmak adhyayan.* Panjab. Dr. Damodar Jha, Reader, Visheshvaranand Vishwa Bandhu Institute of Sanskrit and Indological Studies, Panjab University, Hoshiarpur.

Pali

1. Jain, Vinod Kumar. *Bauddh paramparaon ke sandarbh mein Siddharth Mahakavya ka sameekshatmak adhyayan.* BHU. Dr. P. Dubey. Department of Pali and Buddhist Studies, Banaras Hindu University, Varanasi.

2. Ram Bali. *Lalit Vistar : Ek sameekshatmak adhyayan.* BHU. Dr. P. Dubey, Department of Pali and Buddhist Studies, Banaras Hindu University, Varanasi.

3. Tripathi, Shailander Kant. *Anguttar Nikay ka sameekshatmak adhyayan.* BHU. Dr. K.C. Jain, Department of Pali and Buddhist Studies, Banaras Hindu University, Varanasi.

Punjabi

1. Gurmeet Singh. *Adhunik Panjabi kavita vich rahasvadi tat.* Panjab. Dr. Hardev Singh Sachar, Department of Panjabi Studies, Panjab University, Chandigarh.

2. Jaivant Kaur. *Jaswant Singh Kanwal te Gurdial Singh de novelan da tulnatmak adhyayan.* Panjab. Dr. Naresh, Department of Bhai Vir Singh Chair, Panjab University, Chandigarh.

3. Pavandeep Kaur. *Tatkaleen samajik paripekh vich Sant Namdev to Guru Ravi Dass : Tulnatmak adhyayan.* Panjab. Dr. Krishna Kalsia, Govt. College for Boys, Chandigarh and Dr. D.P. Singhal, Department of Guru Ravi Dass Chair, Panjab University, Chandigarh.

Hindi

1. Anpurna Devi. *Upanvaskar Premchand aur Amritlal Nagar ka jeevan darshan : Ek tulnatmak adhyayan.* Panjab. Dr. M.P. Bhardwaj, Department of Hindi, Panjab University, Chandigarh.

2. Chapal, Adarsh. *Samkaleen Hindi natakon mein songharshsan 1970 se 1985 tak.* Panjab. Dr. Bal Raj Sharma, 3201/21-D Chandigarh.

3. Chaurasia, Kamal. *Hindi upanyason mein prayog dharmita : Devesh Thakur ke upanyason ke vishesh sandarbh mein.* HS Gour. Dr. Suresh Acharya, Reader, Department of Hindi, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

4. Jaswinder Kaur. *Laxmi Narain Lal ka natak sahitya : Prayog sheelta ke sandarbh mein.* Panjab. Dr. S. Yadav, Lecturer, Govt. College, Ludhiana.

5. Nair, Tulsi. *A comparative study of the short stories of Kamaleswar and Thakazhi Sivasankara Pillai.* Kerala. Dr. M.A. Karim, Publication Officer, Department of Publications, University of Kerala, Trivandrum.

6. Sood, Savita. *Pragativadi vechardhara de sandarbh vich Jaswant Singh Kanwal te Yashpal de novelan da tulnatmak adhyayan.* Panjab. Dr. Naresh, Department of Bhai Vir Singh Chair, Panjab University, Chandigarh.

7. Surat Singh. *Ram Dhari Singh Dinkar ke kavyagat kathasroton ka swaroop gat adhyayan.* Panjab. Dr. Lakshmi Narayan Sharma, Reader, Department of Hindi, Panjab University, Chandigarh.

Urdu

1. Nilofer Anjum Mohammad. *Urdu mein adabi khatoot kee riwayet.* Panjab. Dr. Haroon Ayub, Department of Urdu, Panjab University, Chandigarh.

Marathi

1. Kokate, Mangala Mahadeo. *Valve va Miraj Talukyateel istri geetancha tolnik abhyas.* Shivaji. Dr. S.R. Patil, S.G.M. College, Karad.

History

1. Bajaj, Rakesh Kumar, *Dr. Harisingh Gour Puratattva Sangrahalya mein sangrahit pratimayon ka adhyayan.* HS Gour. Dr. S K. Pandey, Reader, Department of Ancient Indian History, Culture and Archaeology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

2. Chakravorti, Lipika. *Material culture as reflected in Jain paintings of Western India, 1200-1650 A.D.* Panjab. Dr. (Mrs.) Karuna Goswamy, Department of History, Panjab University, Chandigarh.

3. Guraya, Surat Singh. *Ladakh under Sin-Ge-Nam-Gyal and Del-Dan Nam-Gyal, CA 1600-1694 A.D.* Panjab. Dr. C.L. Datta, Department of History, Panjab University, Chandigarh.

4. Jadia, Kalpana. *Bundelkhand kshetra mein Matry Devi pratimayon ka sameekshatmak adhyayan.* HS Gour. Dr. S. N. Manwani, Reader, Department of Ancient Indian History, Culture and Archaeology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

5. Mahajan, Sneh. *The rural economy of India in the Gupta age.* Panjab. Dr. J.K. Sharma, Department of History, Panjab University, Chandigarh.

6. Mishra, Vishwanath. *Sagar kshetra kee Pashan yugeen sanskritiyan.* HS Gour. Dr. V.D. Jha, Reader, Department of Ancient Indian History, Culture and Archaeology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

7. Rajput, Anita. *Smritiyon ka rajshastriya adhyayan.* HS Gour. Dr. R.L. Agarwal, Lecturer, Department of Ancient Indian History, Culture and Archaeology, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

8. Shukla, Manoj Kumar. *Bundelkhand ka sanskritik itihas : Guptakal se barahveen shati tak.* HS Gour. Dr. S.D. Mishra, Reader, Department of Ancient Indian History Culture and Archaeology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

9. Singh, Mithilesh. *Prachin Bharat mein istriyon ke sampattik adhikaron ka vivechan.* HS Gour. Dr. S.D. Mishra, Reader, Department of Ancient Indian History, Culture and Archaeology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

10. Tripathi, Ravindra Nath. *Rajnandgaon Jile kee Mandir vastu tatha moortikala.* HS Gour. Dr. S.N. Manwani, Reader, Department of Ancient Indian History, Culture and Archaeology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

11. Zeba Shafiq. *Banda Janpad ka puratattva.* HS Gour. Dr. S.D. Mishra, Reader, Department of Ancient Indian History, Culture and Archaeology, Dr. Harisingh Gour Vishwavidyalaya. Sagar,

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Library & Information Science

1. Binwal, Jagadish Chandra. *Modes of formation of subjects and their role in information retrieval.* Karnatak. Dr. C.R. Karisiddappa, Reader, Department of Library and Information Science, Karnatak University, Dharwad.

Psychology

1. Awasthi, Neelam. *Social psychological factors in working women.* Delhi.

2. Beena, G. *Personality typologies : A comparative study of Indian and modern approaches.* Osmania.

3. Bhatt, P.D. *Alienation, dogmatism and self image in relation to prolonged deprivation in Kumauni and non-Kumauni adolescents.* Kumaun. Dr. V.K. Sharma.

4. Chaudhuri, Nilima. *Psycho-social problems of industrial shiftworkers.* Calcutta.

5. Enayati, Shariatpanahi Mirsalaheddin. *A study of interrelationship among psychological and physiologic a factors in psychophysiological disorders.* Karnatak. Prof. K R. Mallappa, (Retd.), House No. 5, Site No. 225, J.P. Nagar, Mysore.

6. Hiremath, Jagadishwarayya Kendayya. *A comparative. study of depressive and non depressive college students with reference to self confidence, personality pattern, adjustment pattern and academic achievement.* Karnatak. Prof. K.R. Mallappa, (Retd.), House No. 5, Site No. 225, J.P. Nagar, Mysore.

7. Narchal, Renu. *A study of imagery : A chronometric analysis.* Delhi.

8. Neeru Bala, *Value patterns, personality and intellectual abilities in relation to sex role orientation among adolescents.* HP.

9. Qamar Jahan. *A study of communal prejudice as related to self-disclosure and adjustment.* Aligarh. Dr. Saeeduzzafar, Reader, Department of Psychology, Aligarh Muslim University, Aligarh,

10. Varkey, Leena. *A study of personality, stress and coping in individuals with coronary heart disease.* Bangalore.

Dr. C.G. Prabhu, Department of Clinical Psychology, National Institute of Mental Health and Neuro Sciences, Bangalore.

Sociology

1. Awate, Mahadev Mallappa. *Sugar co-operatives and social change : A sociological case study in Maharashtra.* Shivaji. Dr. S.G. Hiremath, Department of Sociology, Karnatak University, Dharwad.

2. Jadhav Ramesh Balkrishna. *Contribution of Phule and Shahu to caste and religion, 1873 to 1922.* Shivaji. Dr. S.N. Pawar, Prof. and Head, Department of Sociology, Shivaji University, Kolhapur.

3. Jaiswal, Deepak Kumar. *Study of the impact of agricultural development programmes on rural people of Shahpura and Kundam Blocks of Jabalpur District, 1962-84.* Durgawati. Dr. C.S.S. Thakur, Department of Sociology, Rani Durgawati Vishwavidyalaya, Jabalpur.

4. Jauhari, Ojaswini. *Bharat mein mahilaon kee visheshkar vivah, dahej va unse sambandhit karyon kee samasya.* Bundelkhand. Dr. (Smt.) Gargi, Principal, Arya Kanya College, Jhansi.

5. Mishra, Moti Lal. *Rewa Jile ke gramya vikas mein gram panchayaton kee bhoomika : Ek samajshastriya adhyayan evam mulyankan.* Awadhesh. Dr. D.S. Baghel, Reader, Department of Sociology, T.R.S. College, Rewa.

6. Sasikalabhooshana, B. *Settlement structure and development pattern : A study of changes in settlement structure vis-a-vis spatial pattern of development in Southern Karnataka.* Mysore.

7. Sharma, Krishna Kumar. *Anusuchit janjatiyon mein sanskritik parivartan : Sandarbh-Shahdol Jila, M.P.* Awadhesh. Dr. D.S Baghel, Reader, Department of Sociology, T.R.S. College, Rewa.

8. Sivia, Gurdev Singh. *Social aspects of sports in India.* Marathwada. Dr. (Mrs.) S.V. Kaldate, Prof. and Head, Department of Sociology, Marathwada University, Aurangabad.

9. Tanksale, Prajakta Prashant. *The problems of social adjustment and rehabilitation of the Bhind,* Nagpur. Dr. S. Tayal, Matru Seva Sangh, Nagpur.

10. Tayal, Prafullchandra. *Gramin Bundelkhand mein samajik starikaran ke koranon ka samaj-shastriya adhyayan : Banda Jile ka ek gram Maudaha.* Bundelkhand. Dr. B.L.K. Seth, Prof. Department of Sociology, Christ Church College, Kanpur.

11. Upadhyay, H.C. *The changing status of Harijans in Uttarakhand : A sociological study of Harijans in Uttara Khand region of U.P. D. Litt.* Kumaun.

12. Verma, Neeraj. *Study of whole convict about their personal social economical background.* Bundelkhand. Dr. (Smt.) Gargi, Principal, Arya Girls College, Jhansi.

Social Anthropology

1. Bhakta, Ranajit Kumar. *Sacred complex of Nabadwip.* Calcutta.

Political Science

1. Bhattacharyya, Suchintya. *The Halms of Tripura : A tribe in transition.* Calcutta.

2. Chattopadhyay, Putul. *Parliamentary privileges in India.* Burdwan. Dr. Bholanath Banerjee, Reader, Department of Political Science, University of Burdwan, Burdwan.

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7. Robert, Crasta. *Political consciousness among the Catholics of U.P.* Kumaun. Dr. S.K. Jha.

Economics

1. Bhauryal, D.S. *Economics of out-migration : A study of Kumaun Region.* Kumaun. Dr. T.S. Papola.

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3. Hari Ram. *Janpad Pithoragarh ke gramin kotambik kshetra mein alp bachat evam viniyog : Adarsh sarvekshan.* Kumaun. Dr. J.C. Pant.

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Law

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Public Administration

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Education

1. Deshmukh, Veena Martandrao. *Some temperamental correlates of Mathematics learning.* Nagpur. Prof. A.A. Kayande, Regional College of Education, Mysore.

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Commerce

1. Abbas, Samir Abood. *Strategies of Petro chemical industries in Arabian countries.* Delhi.

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Home Science

1. Dave, Parul Bhagirath. *In service training module for the health functionaries working in tribal areas of Panchamhals, Gujarat.* Baroda.

2. Seshadri, Subhadra. *Studies on nutrition, health education in the ICDS set up.* Baroda.

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Applications are invited for the post of Principal, in the grade of 2250-125/2-2500-EB-125/2-2750 (unrevised) alongwith a postal order for Rs. 15/- drawn in favour of the Principal, Regional Engineering College, Jalandhar. The Candidates must fulfil the following qualifications :

1. Ist class (or equivalent) Master's/Doctorate degree in Engineering and Technology or Applied Sciences.

2. Atleast 15 years experience in two or more of the following fields :

   (a) Teaching at an Institution of University Standard.

   (b) Research in a recognised Institution or Organisation.

   (c) Industry including Govt. Departments in a Senior executive position.

   (d) Planning and administration of technical education.

Atleast five years of experience should be in teaching in an Engineering Institution of University standard.

Desirable

1. Professional/Scientific/Research work of outstanding merit.
2. Experience in curriculum Development, Administration and planning of technical institution at degree and Post-graduate level.
3. Published work of high standard.
4. Membership of professional bodies.

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The post carries D.A. and other allowances as admissible under the rules of the College. Candidates called for interview from outside will be paid single Ist class railway/Air-conditioned Bus fare by shortest route for their journey to and fro. No D.A. will be admissible. Provision for higher start for exceptionally qualified and deserving candidates. Persons in service should submit their applications through their employers. Applications typed on plain paper giving the following particulars complete in all respects should be sent by registered post to the Chairman, Board of Governors, Regional Engineering College, Camp Office : Mehrchand Polytechnic Hostel, Kabir Nagar, Jalandhar-144 008 (Punjab) so as to reach him by **15.4.1989** :

1. Name in full (in Block letters) :
2. Father's Name :
3. Present Postal address (Block letters) :
4. (a) Nationality :
   (b) Whether belongs to SC/ST/BC :
   (c) Marital status :
5. Date of Birth :
6. Educational qualifications (from Matriculation onwards with percentage of marks & the Board / University from where passed in tabular form alongwith attested copies of the testimonials. :
7. Field of Specialization :
8. List of all previous employment in order : (Most recent first together with details of duties, salary drawn). :
9 Details of Publications (Attach Prints) :
10. Name & Address of two references. :
11. Any other relevant information. :

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MINISTRY OF DEFENCE

Defence Research and Development Organisation (DRDO)

Advt. No. 018/RAC/89

Self motivated applicants with bright track record & having aptitude for Research and Development in Radars, EMI/EMC, Microwave, Gas Turbine, Computers, Signal Processing, MMW devices, Guidance and Control, etc. are invited for the following Fellowship Programmes in DRDO:

(A) Fifth Electronics Fellowships Course	50	UR—38 SC— 7 ST— 5
(B) Gas Turbine Technology Fellowship Course	10	UR— 8 SC— 1 ST— 1
(C) Senior Fellowship Course in Guided Missiles Technology Leading to M.E./M. Tech Degree	30	UR—23 SC— 5 ST— 2

The fellowships at (A) and (B) are tenable at Institute of Armament Technology, Pune for 12 months. Fellowships at (C) are available in various Institutes/Universities. The selected fellows have to undergo training in specialised courses. On successful completion of courses they may be absorbed as Scientists 'B' (Central Service, Group 'A' Gazetted, Pay Scale : Rs. 2200-4000) in Defence Research Development Service (DRDS).

Admission criteria and eligibility conditions for each fellowship programme is given in the succeeding paragraphs.

(1) ELECTRONICS FELLOWSHIP COURSE

Selected candidates would have to undergo specialised training as Fellows at Institute of Armament Technology, Pune for a period of 12 months. The fellows will have to pass such tests as are prescribed by the Institute.

Eligibility

(a) **Age** : Not exceeding 26 years (relaxable by five years in case of SC/ST candidates and Govt. servants). Age will be reckoned as on 15 May, 1989.

(b) **Educational Qualifications : Essential** : At least second class Master's degree in Physics/Applied Physics with specialisation in Electronics or second class Bachelor's degree in Electronics and/or Communication Engineering from a recognised University or equivalent.

(Candidates appearing in qualifying examination may also apply. Their candidature will be considered provisionally subject to their acquiring the essential qualifications by 31st July, 1989).

(2) GAS TURBINE TECHNOLOGY FELLOWSHIP COURSE

Fellowships are tenable for a duration of 12 months during which candidates would have to undergo training at the Institute of Armament Technology, Pune. They would have to pass such tests as are prescribed by the Institute.

Eligibility

(a) **Age** : Not exceeding 26 years (relaxable by five years in case of SC/ST candidates and Government Servants). Age will be reckoned as on closing date for receiving the applications viz 15th May, 1989.

(b) **Educational Qualifications : Essential** : At least second class Bachelor's degree in Mechanical or Aeronautical Engineering from a recognised university or equivalent.

(3) SENIOR FELLOWSHIP COURSE IN GUIDED MISSILES TECHNOLOGY AREAS LEADING TO M.E./M. TECH DEGREE

The fellowships are tenable for a duration of 18 months during which selected candidates would have to undergo specialised courses leading to post-graduate degree in the subject concerned. The candidates should send their applications direct to University/Institute for the programme in which admission is sought.

Eligibility

(a) **Age** : Not exceeding 26 years (relaxable by five years in case of SC/ST candidates and Government Servants). Age will be reckoned as on 15th May, 89. *Candidates who will be admitted by the Universities/Institutes for their M. Tech programmes will alone be considered for the award of these fellowships.* All desirous candidates therefore should apply for admission to these Universities/Institutes. Names of Universities/Institutes where these courses are run, number of fellowships, qualification requirements and the addresses at which the applications should be forwarded are given below :

Name of the University/Inst.	No. of Fellowships	Name of the Course	Qualification requirements	Address for forwarding applications
I	II	III	IV	V
Indian Institute of Science, Bangalore-560 012.	6	Flight Dynamics, Control, Computer Science	**Bachelor's degree in Aero/ Mechanical/ Electrical/ Electronics/ Computer Science Engg/ Management**	**Dy. Registrar**
Indian Institute of Technology, Madras-600 036.	4	Composites Production & Design.	**Bachelor's degree in Aero/ Mechanical/ Electrical/ Electronics/ Computer Science/ Chemical Engg.**	**Head, FRP Research Centre, IIT Madras, Pin-600 036.**
Indian Institute of Technology, New Delhi-110 016	3	MMW system and devices, Signal Processing	**Bachelor's degree in Aero/ Mechanical/ Electrical/ Electronics/ Computer Science Engg.**	**Head, Centre for Advanced Research in Electronics**

I	II	III	IV	V
Indian Institute of Technology, Kanpur-208 016.	3	Computer Sciences and Simulations	Bachelor's degree in Aero/Mechanical/Electrical/Electronics/Computer Science Engg.	Dean, Academic
Indian Institute of Technology, Kharagpur-721 302	4	MMW Signal Processing	Bachelor's degree in Aero/Mechanical/Electrical/Electronics/Computer Science Engg.	Head. Deptt. of Electronics
Osmania University, Hyderabad-500 007.	4	Signal Processing & Digital Electronics	Bachelor's degree in Aero/Mechanical/Electrical/Electronics/Computer Science Engg.	Head, Deptt. of Electronics and Communication Engg.
Jadavpur University, Calcutta-700 032.	3	Guidance Algorithm/Software/Control	Bachelor's degree in Aero/Mechanical/Electrical/Electronics/Computer Science Engg.	Head, Deptt. of Electronics Engg.
PSG College of Technology, Coimbatore-641 004.	3	Computer aided Design and Manufacturing.	Bachelor's degree in Aero/Mechanical/Electrical/Electronics/Compute Science Engg.	Head, Mechanical Engg. Deptt.

General Conditions/Instructions

(1) Candidates working in Government/Public Sector/Autonomous Organisations should apply through proper channel.

(2) Knowledge of German, French, Russian, Japanese or Chinese language is a desirable qualification.

(3) The prescribed Essential Qualifications are the barest minimum and the mere possession of the same does not entitle candidates to be called for interview. Where the number of applications received in response to an advertisement is large and it will not be convenient or possible for the Recruitment and Assessment Centre (RAC) to interview all those candidates, the RAC may restrict the number of candidates for interview to a reasonable limit on the basis of qualifications higher than the minimum prescribed in the advertisement.

(4) The RAC at their discretion, may hold a written test of candidates applying for Fellowships. No travelling or other allowance will be paid by the RAC for appearing at such written test. Only those qualifying in written test (if held) will be called for interview. TA will be admissible for those called for interview. The number of Fellowships mentioned is tentative and may change.

(5) In case SC/ST candidates are not available in the required number, general candidates will be considered.

(6) Application should be sent on the plain paper in the format given below (to be typed in A-4 size paper 23 x 10 cm) accompanied by a crossed non-refundable current Indian Postal Order of the value of Rs. 8.00 drawn in favour of Senior Accounts Officer, RAC, Defence Research and Development Organisation, payable at New Delhi. There is no fee for Scheduled Caste/Scheduled Tribe candidates.

(7) Self-attested copies of certificates in support of educational qualifications, experience etc. should be attached with the application. Candidates will have to produce during interview the proof of details furnished by them in the application.

(8) The application should be accompanied by two self-addressed unstamped covers of 23 cm x 10 cm size.

(9) Only typewritten applications will be accepted. Incomplete applications will be rejected and no correspondence will be entertained in this respect.

(10) Only Indian nationals need apply.

(11) The applications should be sent to Director, Recruitment and Assessment Centre, Lucknow Road, Timarpur, Delhi-110 007 preferably by Registered Post in a cover superscribed "Application for Fellowship Programme" for Fellowships at items (A) & (B) only alongwith requisite Postal Orders.

(12) Candidates for Senior Fellowship Scheme at item (C) should send their applications alongwith requisite Postal Orders direct to the Institute to which they would like to seek admission in the M.E./M. Tech. Programme (address have been give above under Column V of table). Postal Orders however should be in the name of Senior Accounts Officer, RAC, DRDO, New Delhi-110 011.

(13) **Last date for receipt of applications is 15th May, 89.** Last date for receipt of applications for candidates from Andaman and Nicobar, Lakshadweep islands and abroad is 31st May, 1989.

(14) Canvassing in any form will be a Disqualification.

(15) **Selection** : Selection will be on the basis of a test/interview.

(16) **Stipend & Salary** : During training, the trainees will be paid a consolidated stipend of Rs. 2000/- per month. In addition book allowance would be admissible. They may be given suitable Hostel Accommodation during the period of Fellowship on payment of rent as per rules. On successful completion of the training, candidates would be placed in one of the Laboratories/Establishment as Scientists 'B' in the scale of Rs. 2200-75-2800-EB-100-4000. The approximate total emoluments (ATE) at the minimum of the scale vary from Rs. 2806/- to Rs. 3256/- per month depending upon the place of posting. In addition, advance increments may be given in deserving cases depending on the performance during the training.

(17) For instructional tours and summer training in the DRDO establishments, the Fellows will be entitled to TA/DA as admissible to Central Government Group 'A' Officers drawing a basic pay in the scale of Rs. 2200-75-2800-EB-100-4000.

(18) During the operation of the Fellowship Scheme, the Fellows will be required to pass all tests/examinations which are prescribed by the Institute. Those who are not able to pass such tests/examinations and do not successfully complete the training shall not be considered for appointment to the grade of Scientist 'B'.

(19) **Bond** : Candidates will be under contractual obligation to serve the Defence Research & Development Organisation for a period of three (3) years, after completion of training. During training the

candidates will not be permitted to apply/appear for any interview/selection/examination.

(20) **Promotion Prospects** : DRDO offers excellent opportunities for career advancement as Scientists. Result oriented and highly motivated scientists can look forward to promotion to the following grades. Approximate total emoluments (ATE) at the minimum of the pay scale will depend upon the place of posting.

Scientist 'C' : Rs. 3000-4500 (ATE Rs. 3830 to Rs. 4390)
Scientist 'D' : Rs. 3700-5000 (ATE Rs. 4705 to Rs. 5405)
Scientist 'E' : Rs. 4500-5700 (ATE Rs. 5608 to Rs. 6408)
Scientist 'F' : Rs. 5100-6300 (ATF Rs. 6267 to Rs. 7067)
Scientist 'G' : Rs. 5900-7300 (ATE Rs. 7187 to Rs. 7987)

Promotion in DRDO depends upon merit and performance and is not linked to availability of vacancies.

(21) Candidates have the liability to serve anywhere in India.

PROFORMA APPLICATION

APPLICATION FOR FELLOWSHIP COURSE IN—

1. Name in full (Shri Smt./Km.) (in block letters)

Affix Passport size latest Photograph

2. Title of Fellowship :
3. (a) Name of the Institute/University at which admission is being sought
   (b) Name of the discipline of Engineering for which admission is sough :
4. (a) Date of Birth : (in Christian era in figures).
   (b) Age as on 15th May 1989 :
5. Nationality :
6. Marital Status :
7. Father's/Husband's name :
8. (a) Address for correspondence : (in block letters with PINCODE)
   (b) Permanent address (in block letters with PINCODE)
9. Details of Postal Order (No., Date and Amount)
10. Nearest Railway Station :
11. Whether belong to SC/ST : (If yes, attach certificate)
12. Educational Qualifications : In chronological order from X Standard (SSLC/HS/HSC) onwards

Sr. No.	Course Passed	University/ Institution/ Board	Year of Passing	Subject taken	Percentage of Marks

13. (a) Are you a Govt. servant : Yes/No
    (b) If yes, whether in Central/State Govt./Union Territory Govt.
14. Professional Training :

Organisation	Period		Details of Training
	From	To	

15. (a) Are you qualified at GATE 89 :
    (b) If qualified, please give the percentile score :
16. Employment Record :

Name & address of employer	Period of service		Designation of the post held/Name of Estt.	Scale of pay of each post	Detailed description of work*	Reason for leaving
	From	To				

*Separate sheet may be attached if necessary.

17. Minimum joining time required.
18. Field of Special Interest :
19. List of Papers Published :
20. Are you under any contractual obligation to serve Central/State Govt. / PSU/Autonomous Body ? If so, give details.
21. Details of relatives already employed in DRDO:

Name of Relatives	Relationship	Lab/Estt. in which employed	Post Held

22. Have you applied for any post in DRDO during the past two years ? If yes, give particulars :

Sr. No.	No. and Date of Advt.	Name of Post Discipline	Date of Interview	Remarks

23. Any other information you may wish to add (Use separate sheet if necessary).
24. Declaration.
    I declare that the foregoing information is correct and complete to the best of my knowledge and belief and nothing has been concealed/distorted. If at any time, I am found to have concealed/distorted any material information, my appointment shall be liable to summary termination without notice / compensation. I will, if and when required, take up duty in the discharge of government assignments anywhere in India.

Place : Signature of Candidate

Date :

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	(ii) Statistics and Research method	1
	(iii) Linguistics	
3.	Mass Media officer	
4.	Lecturer (Education Deptt.)	1
5.	P.A. to Director	1
6.	Extension Service Asstt. (Sp. Edu.)	1
7.	Clinical Asstt. (Earmould)	1
8.	Clinical Asstt. (Speech & Language Pathology)	1
9.	Clinical Asstt. (Material Development)	1
10.	Sign Language Trainer	1
11.	Honorary Physician	1
12.	Pump Attendant	1
13.	Staff Nurse (Part time)	1
14.	Staff Nurse (Full time)	1
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15.	Asst. Sign Language Trainer	1
16.	Research Assistant (Study of Achievement levels)	1

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For Post at Sr. No. 1 :

(1) Post Graduate with Diploma Certificate in Education of Deaf.
OR
(2) M.Sc. (Speech & Hearing)
OR
(3) B.Sc. (Speech & Hearing)
OR
(4) B.A. with Diploma/Certificate in Deaf Education

) with 5 years experience as Lecturer in a recognised Institute

For Post at Sr. No. 2 :

(1) B.E. or M.Sc. Electronics and/or Acoustics with 2 years experience.
Desirable : Ph.D in the area.

(2) M.Sc. in (Statistics) with specialization in Bio-statistics or Research Methodology with 2 years experience in conducting Behavioural or social Research, application of computer Technology for research.
Desirable : Ph.D in the area.

(3) Linguistic : M.A. in Linguistics with two years teaching/Research experience in Psycho/Neuro Linguistics/of Speech & Phonetics.

For Post at Sr. No. 3 :

(1) Degree of Recognised University.
(2) Degree/Diploma in Mass communication/Journalism.
(3) 2 Years experience.

For Post at Sr. No. 4 :

Post Graduate with Diploma certificate in special Education of Deaf with 5 years teaching experience.

OR

Graduate with Diploma / Certificate in special Education of Deaf with 7 years teaching experience.

Desirable: Knowledge of Sign Language.

r Post at Sr. No. 5 : Graduate of any faculty with shorthand speed of 120 w.p.m. and typing speed of 60 w.p.m.

r Post at Sr. No. 6 : Graduate with Diploma/Certificate in special Education for the Deaf with 5 years experience in the field.

r Post at Sr. No. 7 & 8 : B.Sc. (Speech & Hearing)
OR
B.Sc. (A.S.T.)

r Post at Sr. No. 9 : Degree holder/Diploma in applied Art with experience in making Audio-visual and knowledge of print Media.

r Post at Sr. No. 10 : Graduate with B.Ed (Deaf) with 2 Years experience in Sign Language.

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or Post at Sr. No. 13 & 14 : Degree or Diploma in general Nursing and Mid Wifery. Experience in Rehabilitation Nursing Preferred.

or Post at Sr. No. 15 : Graduate preferably B.Ed. Conversant with English and one more major Indian Language and interested in working with the Deaf.

or Post at Sr. No. 16 : Post-Graduate with Knowledge of English.

Desirable: Degree/Diploma in social work.
OR
Experience of teaching the Deaf.

	PAY SCALE	TOTAL INTIAL EMOLUMENTS
. For Post at Sr. No. 1	Rs. 3000-4500/-	Rs. 4,390/-
2. For Post at Sr. No. 2,3 & 4	Rs. 2200-4000/-	Rs. 3,256/-
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. For Post at Sr. No. 6	Rs. 1640-2900/-	Rs. 2,542/-
. For Post at Sr. No. 7,8,9,10,14, & 15	Rs. 1400-2600/-	Rs. 2,017/-
. For Post at Sr. No. 11	Honorarium of Rs. 500-1000/-	
. For Post at Sr. No. 12	Rs. 750-1400	Rs. 1,103/-
. For Post at Sr. No. 13	Rs. 900/- consolidated	
. For Post at Sr. No. 16	Rs. 1500/- consolidated	

The appointment for the post at Sr. No. 15 & 16 will be purely on temporary basis for a period of one year or till the mpletion of the UNICEF Project whichever is earlier.

SERVATIONS

Post at Sr. No. 1,2,4,6,7,8,11, 13 & 15 are reserved for Scheduled Tribe candidates and post at Sr. Nos. 3,9,10,14 are erved for Scheduled Caste Candidates. If candidates for reserved posts are not available, they will be filled up by ers on year to year basis.

E LIMIT

For Post at Sr. 1 : Not exceeding 45 years.
For Posts at Sr. No. 2 to 4 : Not exceeding 40 years.
For all other posts : Not exceeding 30 years.

Age will be relaxed by Five years in case of Departmental candidates and Scheduled Caste/Scheduled Tribe Candi- es.

Preference will be given to candidates :

— with Hearing Impairment
— Sportsmen/Players of National Status.

Candidates employed in Government/Semi-Government Services, should forward their applications through proper nnel.

Applications giving full details such as Name in full, Postal address, Date of Birth, Educational Qualifications with x copies of certificates, details of experience should be forwarded to the Director, Ali Yavar Jung National Institute he Hearing Handicapped, Opp. Telephone Exchange, K.C. Marg, Bandra Reclamation, Bandra (W), Bombay 400 050, n 15 days from the date of appearance of the Notice in Newspaper. Incomplete applications will not be considered.

* * *

SANJAY GANDHI POST GRADUATE INSTITUTE OF MEDICAL SCIENCES

Post Box No. 375, Rae Bareli Road, Lucknow-226001

Extended Last Date :—April 20, 1989
Corrigendum to Advt. No. 60/89

For the Posts of Professors & Associate Professors

Qualification and Experience has been revised as under. All other terms and conditions remain unchanged.

Professor (Medical)
Qualification Essential

1. A medical qualification included in schedule I and II or part II of third schedule of the Indian Medical Council Act of 1956 (persons possessing qualifications included in part I and II of the third schedule should also fulfil the conditions specified in section 13(3) of the act.
2. A post graduate qualification e.g. M.D./M.S. or a recognised qualification and/or equivalent thereto.
3. D.M. for medical superspecialities and M. Ch. for surgical superspecialities or equivalent thereto.

Experience

12 years teaching and/or research experience in a recognised institution in the subject of speciality after obtaining the qualifying degree of M.D./M.S. or 10 years after obtaining D.M./M.Ch. or equivalent qualification.

Professor (Non-Medical)
Qualification Essential

1. Post-graduate Qualification e.g. Master's degree in the discipline/allied subject.
2. Ph.D. degree of a recognised University.

Experience

10 years teaching and/or research experience in the discipline subject after obtaining the Ph.D. degree.

Associate Professor (Medical)
Qualification Essential

1. Same as for Professor.
2. Same as for Professor.

Experience

8 years teaching and/or research experience in a recognised institution in the subject of speciality after obtaining the qualifying degree of M.D./M.S. or 6 years after obtaining D.M./M.Ch. or equivalent qualification.

Associate Professor (Non-Medical)
Qualification Essential

1. Same as for Professor.
2. Same as for Professor.

Experience

7 years teaching and/or research experience in the discipline/subject after obtaining the Ph.D. degree.

Prof. B.B. Sethi
DIRECTOR

BANARAS HINDU UNIVERSITY

(Advertisement No. 3/1988-89)

Applications are invited for the undermentioned posts. The benefit of Provident Fund / Pension, Dearness Allowance, House Rent Allowance and City Compensatory Allowances are admissible according to University rules. The retirement age is 58 years unless otherwise revised. The appointment will be made on one year probation. Higher starting salary within the grade is admissible to specially qualified and experienced candidates.

Applications will be entertained on the prescribed form duly supported with a Bank Draft/Indian Postal Order/Overseas Postal Order of Rs. 10/- (of Rs. 2.50 for the candidates belonging to Scheduled Caste/Scheduled Tribes category) in favour of the Registrar, BHU towards application fee. Application from will be supplied on receipt of crossed I.P.O./Bank Draft of Rs. 2/- in favour of the Registrar BHU and self-addressed envelope of 23 x 10 cm size carrying stamps of Rs. 2.60. The University will not defray the travelling or other expenses of candidates called for interview but shall contribute actual Railway fare by shortest route for second class plus reservation charges for sleeper and/or the actual Bus fare from the candidates's normal place of residence in the case of candidates called for interview. Candidates from outside India shall be entitled to actual Railway fare by shortest route for second class plus reservation charges for sleeper and/or actual Bus fare from the port of entry to the place of interview.

Application for each post be sent separately alongwith attested copies of certificates and marksheets in support of the qualifications and experience mentioned in the application and be addressed to the Registrar (Selection Committee Section), Banaras Hindu University, Varanasi-221005. INDIA.

Incomplete application in any respect will not be entertained for consideration. Those who are in service should apply through proper channel. Money Order or Cheque will not be accepted towards application fee.

The last date for receipt of application in the Office of the Registrar (Selection Committee Section), Banaras Hindu University either by post or by hand will be April 22, 1989. Applications will be received by hand at the Counter from 10.30 hrs. to 14.30 hrs. on each orking day till the last date. No pplication shall be entertained after the ist date from external, in-service mployees and the candidates residing broad.

1. Deputy Registrar (Five — Two osts reserved for SC/ST Candidates)

Grade : Rs. 3700-125-4900-150-5700.

Qualifications

Essential : 1. A Postgraduate degree vith at least 55% marks or its equivalent rade.

2. 8 years experience as a Lecturer n a College or a University with experience in educational administration.

OR

Comparable experience in research establishments and other institutions of education.

OR

8 years administrative experience as Assistant Registrar or in a post carrying a scale of pay of Rs. 2200-4000.

2. Assistant Registrar (Five—Two posts reserved for SC/ST Candidates).

Grade : Rs. 2200-75-2800-100-4000.

Qualifications

Essential : 1. A postgraduate degree with at least 55% marks or its equivalent grade.

Note : Direct recruitment will be made on the basis of a written test and interview.

Dy. REGISTRAR (Admin.)
(Selection Committee Section)

PUNJABI UNIVERSITY
PATIALA

Advt. No. 74/PRO/Rect.

Applications are invited for the ollowing posts so as to reach the Deputy Registrar (Estt.) on or before 10/4/1989.

1. Professor : One each in English or University Regional Centre, Bhatinda, Biotechnology & Psychology.

Grade : 4500-7300 (UGC).

Specializations

English : Commonwealth Literature/ Modern British/American Literature.

2. Readers : Two in Computer Science & Applications and one each in Social work, Physics, Journalism & Mass Communication and one in Persian for Nawab Sher Khan Institute of Advanced Studies in Urdu at Malerkotla.

Grade : 3700-5700 (UGC).

Specializations

Computer Sc. & Applications : First post : Computer Communications / Analog and Digital Circuits and Design.

Second post : System simulation / Artificial Intelligence.

Physics : TV/Computer Electronics, Nuclear/Radiation Physics, Solid State Physics/Material Science, Optic, Plasma Physics and Theoretical Physics.

Journalism & Mass Communication : Mass Communication.

3. Lecturers : Four in Physics, three in Computer Science & Applications, two each in English (Correspondence Courses) one for Urdu and one for Arabic for Nawab Sher Khan Institute of Advanced Studies in Urdu at Malerkotla and one in Social Work.

Grade : 2200-4000 (UGC).

Specializations : Same as for Reader's post.

English (CC) : 1. Modern Drama/ Poetry.

2. Black Literature/European Literature.

Note : For the posts of Reader & Lecturers for Nawab Sher Khan Institute of Advanced Studies in Urdu. Candidates having addl. qualifications in Arabic/Persian / Urdu will be preferred.

4. Librarian : (One)

Grade : 1500-2500 (Unrevised)

Qualifications

(a) First or Second Class M.Lib. Science.

OR

M.A./M.Sc./M.Com. plus a First or Second Class B.Lib. Sc. or Diploma in Library Science.

(b) Atleast 10 years experience as Librarian or in a responsible professional capacity in a University Library.

(c) Ph.D. degree or equivalent research work in the field relevant to the profession.

(d) In certain situations in academic libraries, training in Computerisation / Information Technology/ Specialized Areas may be taken into consideration.

5. Finance Officer : (One)

Grade : 1400-2000+150 spl. pay (unrevised).

Qualifications : The candidate should be M.A. or LL.B. or B.A. with S.A.S. with atleast 10 years Administrative/ Supervisory experience not below the position of a Superintendent grade-I or equivalent rank in a University/Institution of higher education or in a Govt. office. Preference will be given to candidates having experience in Account/Establishment matters/Chartered Accountants or those with equivalent qualifications.

6. School Lecturer (ECONOMICS) : One for Senior Secondary Model School.

Grade : 700-1300 (Unrevised)

Qualifications : M.A. (Economics) with B.T. or B.Ed. Punjabi upto Matric Standard.

7. Trained Graduate Teachers : Senior Secondary Model School—One each for Medical and non-medical groups.

Grade : 620-1200 (unrevised)

Qualifications : B.Sc. degree of a recognised University and S.S.T.C. or B.T. or B.Ed. Senior Basic trained with any two of the four subjects in B.Sc. namely Physics, Chemistry, Botany and Zoology. Punjabi upto Matric Standard.

8. Field Organiser : One in the Department of Social Work.

Grade : 700-1200 (Unrevised).

Qualifications : M.A. (Social Work) with 55% marks. Candidates having experience in field work will be given preference.

9. Technical Assistant (Printing) :

One in the Deptt. of Journalism & Mass Communications.

Grade : 700-1200 (Unrevised).

Qualifications : B J.M.C. or its equivalent degree with knowledge of Punjabi. Diploma from a recognised institution in D.T.P. System ward processing/printing with one year experience in a recognised institution OR Two years experience in D.T.P. printing in a recognised institution or undertaking.

10. Pharmacist (Homoeopathic) : One for Health Centre.

Grade : 510-940 (Unrevised).

Qualifications : Matric with two years experience in a Govt. Dispensary/Hospital as Pharmacist/Compounder or three years experience as Pharmacist or Compounder with a registered Homoeopathy practitioner.

11. Lab. Technician Grade-II : One for Health Centre.

Grade : 450-800 (Unrevised).

Qualifications : (a) Matric with Science and Diploma in Medical Laboratory Technology, from a recognised Institute.

(b) Knowledge of working on blood analyzer computer (Computerised Semi-Auto-Analyzer) will be preferred.

12. Clerks/Clerk-Cum-Typists :

Grade : 950-1800 (Revised)

Note : These posts are being advertised to prepare a panel for appointments against leave/short-term/regular vacancies which may become available in future.

Note :

1. The details of qualifications for the post of Professors, Readers, Lecturers & Clerks will be supplied alongwith the application form.
2. The Vice-Chancellor could place before the Selection Committee names of suitable persons for t post of Professor.
3. It is not obligatory to call f Interview every candidate wl possess the essential qua fications.
4. The number of vacancies m change.
5. Candidates must possess worki knowledge of Punjabi.
6. The Selection Committee mig relax the qualifications a experience in exceptional case

APPLICATION FORMS can obtained from the Head, of our Pub cation Bureau, on payment of Rs. 5 at the Counter OR by sending IPO f Rs. 5/- in favour of the Registra alongwith self-addressed envelope the size 25 x 10 cms. with postage wort Rs. 5.50, superscribing on it Appl cation Form for the Post of————

REGISTRA

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MINISTRY OF DEFENCE

Defence Research & Development Organisation

Recruitment & Assessment Centre, Lucknow Road
Timarpur, Delhi-110007

M.Sc. COMPUTER SCIENCE (SOFTWARE) PROGRAMME—SPONSORED BY DRDO

Scheme : The Defence Research and Development Organisation (DRDO) has sponsored the M.Sc. Computer Science (Software) Programme in seven Universities in the country. The aim of the Scheme is to train young talented Science Graduates in the area of Computer Software and to attract them to join DRDO as Scientists. The duration of the Course is two years during which a Fellowship of Rs. 800/- per month is awarded by DRDO to all the selected candidates. On successful completion of the Programme, the candidates are likely to be appointed as Scientist 'B' (Group 'A' Gazetted) subject to the recommendation of the Selection Board of DRDO. Seats are reserved for SC and ST candidates as per Central Government Rules.

Career Prospects : The DRDO offers excellent career prospects to young Scientists. The Defence Research and Development Services comprises the following grades :

Scientist 'B'—Rs. 2200-4000	Scientist 'E'—Rs. 4500-5700
Scientist 'C'—Rs. 3000-4500	Scientist 'F'—Rs. 5100-6300
Scientist 'D'—Rs. 3700-5000	Scientist 'G'—Rs. 5900-7300

Under the 'flexible complementing' scheme in operation in DRDO, promotions are based on merit rather than availability of vacancies.

Universities : The Programme is being conducted in Universities of Allahabad, Andhra, Cochin, Indore, Madurai, Mysore and Pune. The candidates may apply directly to the University of their choice as and when the advertisement appears for each of the University.

Eligibility : Candidates possessing a first class degree in Mathematics, Physics, Computer Science or Electronics from an Indian University are eligible for admission.

Age : Not more than 23 years as on 1st August of the year of admission. This is relaxable by five years in the case of SC and ST candidates.

davp 88/903

ADVERTISEMENT

Applications in prescribed form are nvited for the following Research posts for the Department of Special Assistance t the Department of Anthropology, Utkal University, Bhubaneswar-751004.

(1) Research Associate

—No. of vacancies—One

Emoluments (a) 2200-100-2700

(b) 2700-100-3200

(c) 3200-100-3700

(d) 3700-125-4325

depending on the qualifications and experience.

(2) Junior Research Fellow

—No. of vacancies—Four

Fellowship—Rs. 1800/- for the first and second years, Rs. 2100/- for the subsequent years.

Qualifications

(1) For Research Associate—

(a) Master's Degree in Anthropology with specialization in Social Anthropology / Development Anthropology.

(b) Ph.D. or D.Litt. in Social Anthropology / Development Anthropology/Regional Development.

(c) At least 5 years of Research Supervision at Master or M.Phil level or a research project in Regional Development/Development Anthropology.

(2) For Junior Research Fellow—

(a) Master Degree in Anthropology with specialization in Social Anthropology / Development Anthropology with at least one year research experience in Development Anthropology / Regional Development / Equivalent field of specialization.

None need apply who has not qualified in U.G.C., N.E.T.

NOTE

(i) Conditions of Service, Research Contingencies and other admissible allowances etc. will be provided alongwith the application form.

(ii) (a) Application fee — Rs. 5/- in person and Rs. 10/- by crossed postal order drawn in favour of Head, Department of Anthropology, Utkal University, Bhubaneswar-751 004.

(iii) Candidates in Service should apply through proper channel. But the advance copy must reach by the last date.

(iv) T.A. & D.A. for attending the interview are not admissible.

(v) Last date of receiving application by the undersigned—**15.4.1989.**

DAYALBAGH EDUCATIONAL INSTITUTE
(Deemed University)

DAYALBAGH, AGRA-282 005

Applications are invited in the prescribed form for the following posts :

1. Reader in Zoology (Cytogenetics/ Cell Biology) (3700-5300)-1

2. Lecturers (700-1600*/2200-4000) in—

- (a) Home Science (Clothing & Textile/Extension Education)-1
- (b) English-1
- (c) Economics-1
- (d) Commerce (Applied Business Economics)-1
- (e) Zoology-1
- (f) Hindi-1
- (g) Mathematics (Pure Maths/Computer Sci. & Applications)-3 (Those who have applicd last year in response to the advt. dated 21-9-88, need not apply again as their previous application will be considered)
- (h) Comparative Study of Religion-1
- (i) Rural Development (Home Science with specialization in Extension/Nutrition/Child Development/Textile & Clothing)-1
- (j) Education (Commerce (1), Economics (1), English (1), Hindi (1), Home Sci. (2) & Geography (1))-7
- (k) Drawing & Painting-1
- (l) Electrical Engineering-3
- (m) Computer Science & Applications-1
- (n) Computer Aided Design-1 (upto March, 1990)

3. Teaching Assistant, Electrical / Mechanical Engineering (Rs. 1000/- fixed for graduates in Engineering with atleast 70% marks or Rs. 1100/- fixed for postgraduates in Engineering)-1 each.

4. System Engineer (Computer Centre) (1100-1600)*-1

Minimum Qualifications

1. Good academic record with a doctoral degree or equivalent published work and 5 yrs. exp. of teaching and/or research provided that atleast 3 of these yrs. were as Lecturer or in an equivalent position.

2. (a) to (i) Doctorate with good academic record with a high II class Master's degree. If candidates with doctorate degree are not available or not found suitable, persons with atleast 2 yrs. research exp. may be considered. For Maths those possessing M.Tech. in Computer Sci. or MCA (3 yrs) may also apply.

(j) Doctorate in Education and good academic record with high II class Master's degree in relevant subject or doctorate in relevant subject & good academic record with Master's degree in Education.

(k) Good academic record with II class Master's degree or recognised equivalent degree or dip. and 2 yrs research or professional exp. or evidence of creative work & achievement, or 3 yrs. combined research/professional exp as an artist of outstanding talent, OR a traditional or a professional artist with highly commendable professional achievement.

(l) Master's degree in Elect. Engg. with I class at Bachelor's/Master's level. Engg graduates with I class may also apply.

(m) Master's degree in Computer Sci. or Electronic or Elect. Engg. with Computer Application based project work/ MCA (3 yrs) with 2 yrs. relevant exp/ Master's degree in a related area other than Engg with 3 yrs experience.

(n) Master's degree in Elect. or Mech. Engg. or Computer Science with I div. at Bachelor's / Master's level. Candidates with 1 yr. relevant exp outside academic/ research institute will be preferred. Knowledge of 3 high level languages and use of Computer systems in design, manufacture, data processing and management is desirable.

3. Engg. degree with above 70% marks or I division Master's degree.

4. M.Tech. in Computer Sci. or Computer Tech. or Elect. or Electronics Engg with Bachelor's degree in Elect or Electronics Engg having one yr exp. in maintenance of Electronics hardware. OR Bachelor's degree in Elect or Electronics Engg. or M.Sc. in Electronics having 3 yrs. exp. in maintenance of Electronics hardware.

Note : 1. Prescribed application forms alongwith detailed information can be had from the office of the Registrar of the Institute on payment of Rs. 10/- for posts at Sl. No. 1 to 4 and Rs. 5/- for the other posts by cash at counter or by sending a bank draft of the required amount accompanied by a self-addressed and stamped envelope of the size 22 x 10 cm with stamps worth Re. 1/- for ordinary post or Rs. 6/- for regd. post.

2. Applications complete in all respect alongwith enclosures and registration fee of Rs. 10/- for posts at Sl, No. 1 to 4 Rs. 5/- for other posts should reach the Registrar of the Institute latest by **29 April, 1989.**

3. All payments be made either by cash at counter or by bank draft drawn in favour of 'DAYALBAGH EDUCATIONAL INSTITUTE' payable at Agra.

4. Separate application be made for each post.

5. Superannuated persons are not eligible for employment.

REGISTRAR

NATIONAL INSTITUTE OF HYDROLOGY

JALVIGYAN BHAWAN, ROORKEE

No. 2/89-NIH (Admn.)
Dated : March, 1989

Applications are invited for the following post in National Institute of Hydrology (A Govt. of India Society under Ministry of Water Resources), Roorkee from Indian Nationals satisfying qualifications and experience laid down therefor :

1. **Scientist 'F' :** One post in the area of SURFACE WATER HYDROLOGY.

Scale of Pay : Rs. 5100-150-5700-200 6300. Total Emoluments at the initial of the scale are Rs. 5967.00 excluding HRA.

Age : Below 50 years.

Qualifications : 1. High academic qualifications in Civil Engineering with specialisation in Hydrology or Water Resources.

2. Ph.D. degree desirable.

3. Experience in field problems, corporate membership in professional institutions desirable.

4. About 10 years experience in teaching, research, design or planning.

5. Proven ability of conducting and guiding research.

Note : Persons selected for Scientist 'F' post can be appointed on deputation basis also.

The post carries usual allowances as admissible under the Central Government Rules. Age will be relaxable for persons already in service in the Institute and other Government/Semi-Govt./Autonomous organisations as well as candidates belonging to SC/ST community, retrenched employees of Defence services and physically handicapped persons, as per rules of Govt. of India.

Age will be determined as on 15.5.89.

Persons already employed in Govt./Semi-Govt./Autonomous Bodies should apply through proper channel. Applications not forwarded through proper channel may not be considered.

Application forms may be obtained by 14.4.89 from Chief Administrative Officer, National Institute of Hydrology, Jal Vigyan Bhawan, Roorkee-247667 (U.P.) by sending self-addressed envelope of the size 12 x 28 cms. Application forms duly completed in duplicate with copies of all testimonials alongwith an application fee in the form of Indian Postal Orders of Rs. 8/- (SC/ST candidates are exempted from payment of fee) payable to the National Institute of Hydrology at the Roorkee University Post Office should reach the Chief Administrative Officer, National Institute of Hydrology, Jal Vigyan Bhawan, Roorkee-247667, (UP) on or before 15.5.89.

JOB LOCATION : ANYWHERE IN INDIA

INSTITUTE OF ECONOMIC GROWTH

ANNOUNCES
DIPLOMA COURSE
in
Development Planning and Policy
1st August—15th December, 1989

(Sponsored by the Planning Commission, Government of India).

Eligibility :	Officers of the Central, State/UT Governments and of Autonomous public institutions, nationalised banks, NABARD, RBI, Public Sector Undertakings are eligible to apply. An applicant should be a graduate; should not be more than 40 years of age on 1st August 1989; should have at least 2 years experience of working in developmental or planning capacity.
Sponsorship :	Governments and eligible public institutions can directly sponsor their officers for the course.
Seats Available :	20 of which 10 are residential.
Course Fee :	Rs. 4500/- inclusive of computer time use.
Boarding & Lodging Charges :	Rs. 4300/- Optional

Note that the last date for receiving application including that for the sponsored candidates is **31st May, 1989.**

Prospectus of the Diploma Course available on request. Write to the Course Director, Diploma Programme, Institute of Economic Growth, University Enclave, Delhi-110 007.

Address the application to the Course Director, Institute of Economic Growth, University Enclave, Delhi-110 007.

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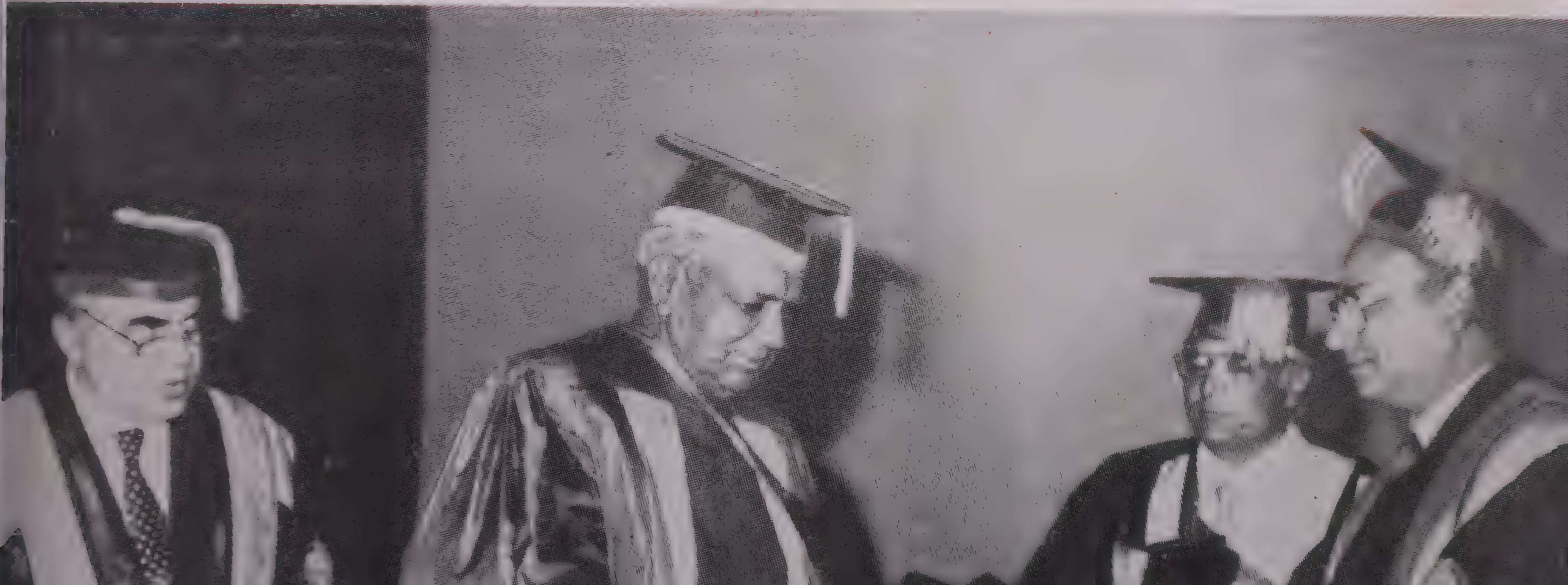
University News

MONDAY, APRIL 3, 1989

Rs. 2.50



Shri H.A. Barari, Governor of Haryana and Chancellor of Haryana Agricultural University, conferring upon Shri Devi La Chief Minister of Haryana, the degree of D.Sc. (*honoris causa*) for his contribution to agriculture at the 17th Annual Convocation of the University. Dr. Har Swarup Singh, Vice-Chancellor of the University, is seen on extreme left.

Science and Technology Entrepreneurship Park (STEP)

ROORKEE

One of the primary objectives of STEP Roorkee, set up under the sponsorship of the Deptt. of Science and Technology, Govt. of India, the University of Roorkee and a number of other organisation, is to promote entrepreneurship development in the thrust areas of Electronics, Computers, Mechanical Engg. and Civil Engineering. STEP Roorkee is expected to play a vital role in establishing a strong institution-industry interaction and providing the necessary motivation, training and infrastructural support to young entrepreneurs. Applications are invited for the following temporary posts :

1. **RESEARCH PROFESSOR : Scale of Pay :** Rs. 1500-60-1800-100-2000-125/2-2500 (Unrevised)+DA and other allowances.

Qualifications & Experience

Essential : 1. An outstanding Engineer/Technologist in the field of Electronics, Computers or Mech. Engineering with established reputation who has made significant contribution to knowledge.

2. Minimum 10 years experience of teaching, research or Industry.

2. **MANAGER PLANNING : Scale of Pay :** Rs. 4500-150-5700 (Revised)+DA and other allowances.

Qualifications & Experience

Essential : Master's Degree in Engineering or Master's Degree in Business Administration, with Bachelors' Degree in Engineering with consistent good academic record. 6 years experience in teaching, research or industry out of which atleast 2 years experience in teaching, research or industry out of which 2 years experience should be in the industry.

Note : A1. The requirement of industry experience may be relaxed in case of otherwise well qualified candidate.

2. Higher start may be given to deserving candidate.

B. Persons having lesser experience may be considered for lower post.

Application forms can be obtained from the Director, STEP Roorkee, AHEC, University of Roorkee, Roorkee-247667. Applications, duly completed and accompanied by a Demand draft/Postal Order for Rs. 10/- drawn in favour of Director, STEP Roorkee must reach this office by **25th April, 1989.**

19 APR 1989

UNIVERSITY NEWS

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A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Editor :
SUTINDER SINGH

THE SOFT STATE OF INDIAN HIGHER EDUCATION

D. A. Ghanchi*

Introduction

Human affairs require proper management in order to avoid wastage of resources and to reap maximum harvest in the form of yields commensurate with investment. Take any field of productive activity, whether agriculture or business, industry or services like health, police, education, etc., there has to be an organised corpus of rules, regulations, practices and norms which should be enforced through an efficient machinery so that the concerned productive activity operates at the peak of its efficiency and installed capacity and leads to the optimum fructification of its goals. To ensure this, there has to be a built-in arrangement in the managerial system to predict likely breakdowns, to forestall as many of them as possible, to anticipate troubles from different quarters and provide a shooting force for them, to foresee possibilities of subversion and ensure adequate preparedness to guarantee the safety of the system, and to ensure a respected rule of law for the undisturbed working of all the components in full health and vigour.

Obviously, any corporate body, ranging from the state to a small organisation in a village, must possess the necessary machinery in full trim to ensure its untrammeled working. If this requirement is waived by deliberate design or default or negligence or mechinations or helplessness or disgust, we have the phenomenon of a 'Soft State'. The ruler, then, abdicates his responsibility to rule, to govern, and to manage in order to carry out his agenda of running the corporate body. Those who are ruled also set aside their role as participants in the process designed to ensure the survival and well-being of the body as a whole and indulge in self-aggrandizement themselves of fall prey to or allow themselves to be made victims of naked aggrandizement by wiley elements.

The Phenomenon

The soft state is as old as human nature. Man is gregarious by nature. He likes to live in groups. Naturally, he relates himself with his fellow human beings in various capacities, as a comrade, a follower, a rival, a leader and so on.

Depending on his cultural orientation, he adopts various methods of working out relationships with other persons. By nature being pugnacious, he may engage into violent warfare. Having been endowed with intellect, he may indulge in clever diplomacy, too. Being a homo sapiens he may use speech and language to operate inter-personal relationship for different purposes.

The modern man is an economic being, also. His economic behaviour may fall anywhere between colonial exploitation and humane altruism. He employs various modes of political behaviour to carry out his economic goals as well as his social objectives.

There have been numerous instances of harsh as well as soft states in the history of human society. However, civilizations have flourished

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Pro-Vice-Chancellor, North Gujarat University, Patan (N.G.).

is a fall in standards in all respects—in academic pursuits, in scholarship, in social behaviour, in management and even in one's personal ethics and behaviour. This is a more dangerous development than even the criminal wastage of material resources that the soft state has given rise to year after year.

Remedies

The phenomenon of the soft state is brought about gradually through the operation of forces and tendencies like the following :

(1) Absence of clarity of and willing dedication to the goals of the system.

(2) Politicisation and commercialisation of various organs of the system.

(3) Climate of permissiveness in the polity of the country, and so, in the system.

(4) Vitiation of the decision making and implementation process through procrastination, partiality, connivance at breach of rules and ad hocism.

(5) An uninspiring classroom and institutional climate and a pervading attitude of unconcern compounded by unaccountability on one hand, unassertive leadership on another, and the near absence of social auditing on still another.

However, the very fact that the system has survived and grown in size todate reassures one about its resilience and inherent strength. The need now is to strengthen the core of the system and emancipate it from the debilitating climate of the soft state through a four fold remedial treatment within a prescribed time frame. The four areas are :

(1) Structural changes
(2) Legal provisions
(3) Academic reorganisation
(4) Moral rearmament

The critical constituents of each are likely to be of the following nature.

1. Structural Changes

Such structural changes are overdue in the system as would strengthen the positive forces conducive to autonomy, accountability, objectivity and excellence. The critical areas for these changes are :

(a) Relationship between Government, Universities and Colleges guaranteeing mutuality, as well as independence.
(b) Operational mechanisms in Universities and Colleges at different levels involving academic, administrative and financial matters.
(c) Community involvement in education in various forms and capacities.

2. Legal Provisions

The statute book of the country must provide for adequate protection of the integrity of the system and the honour of its people. The critical areas for which the law should stand a guarantor and sentry are :

(a) Redressal of legitimate grievances of students, teachers, administrators and parents.
(d) Enforcement of laws without fear or favour and with promptitude and effectiveness.
(c) Monitoring, evaluation and consequent modification of behaviours, practices and procedures.

3. Academic Reorganisation

The system of higher education must set its house in order by reorganising its primary task, namely, education of the youth in the context of the emerging needs of our country. The areas for this exercise on an ongoing basis are :

(a) Restructuring of the curricula and redesigning, of the syllabuses at higher education stage and resetting of the total educational programme from school stage onwards.
(b) Refinement of pedagogic practices, instructional materials and evaluative techniques in the light of modern researches.
(c) Training of students, teachers and administrators for responsible role acquittal in respective areas.

4. Moral Rearmament

Soft state is primarily an attitude of the mind. It is born out of mental and moral lassitude, incapacitation and resignation. The phenomenon is more pathological rather than criminal. Hence, a major therapeutical breakthrough has to be made in the mental and moral territory. The chief areas are :

(a) Recharging of the social, cultural and academic climate in the country and its institutions with the new ethos of purposiveness, perseverance and probity.
(b) Remobilisation of the academic community—students, teachers, administrators, researchers, materials' producers, etc.—and their rededication to the goals of education in the service of national development.
(c) Building up of the highest work ethics and codes of conduct for all participants in the national enterprise of education.

Conclusion

The history of human civilization has ample evidence of the rise and fall of man through his acts of omission and commission. Its lesson is that phoenix-like resurrection is not ordained for every race, but rise through deliberate plans is within the reach of everyone of it. We can rely on the latter to rid our higher education of the blight of the soft state.

□

AUTONOMY IN ACTION

SDS Autonomous College, Shreeramnagar

A.L. Mohan*

M/s. Ferro Alloys Corporation Ltd. (FACOR), Shreeramnagar, the largest producers and exporters of Ferro Alloys in the country started Shree Durgaprasad Saraf Autonomous College of Arts and Applied Sciences, Shreeramnagar, Distt. Vizianagaram, Andhra Pradesh in 1975. Job Oriented undergraduate courses with Mineral Beneficiation, Geology, Materials Handling/Chemistry and Applied Chemistry, Mathematics and Physics were started in 1977. In 1984 UGC sanctioned the starting of Restructured undergraduate course in Electronics. In 1987, UGC granted Autonomous status to the Institution.

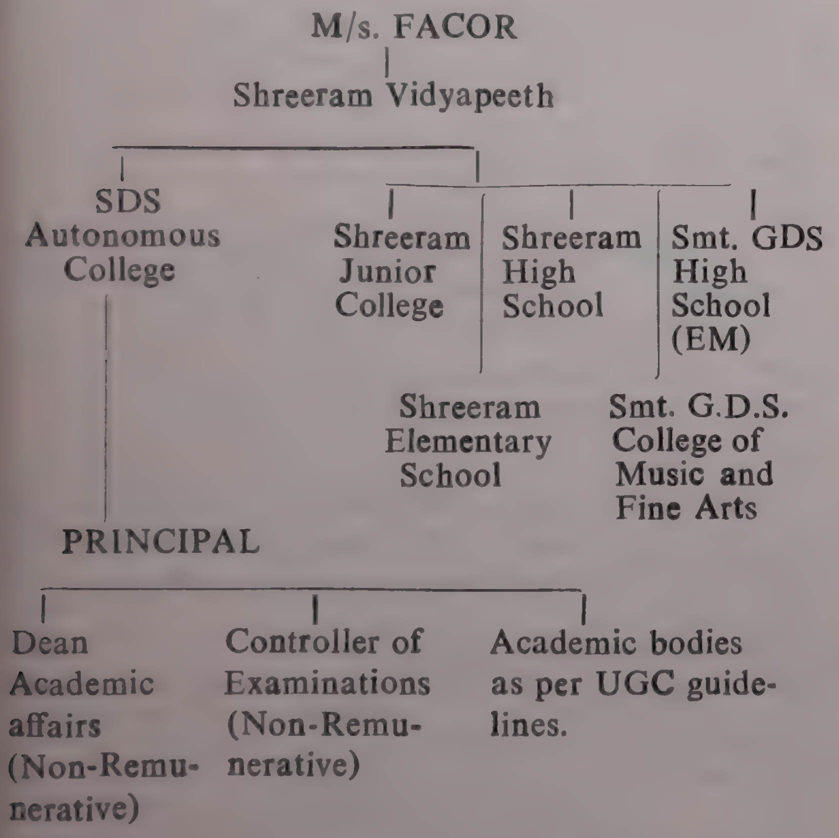
M/s. FACOR
Shreeram Vidyapeeth
SDS Autonomous College
Shreeram Junior College
Shreeram High School
Smt. GDS High School (EM)
Shreeram Elementary School
Smt. G.D.S. College of Music and Fine Arts
PRINCIPAL
Dean Academic affairs (Non-Remunerative)
Controller of Examinations (Non-Remunerative)
Academic bodies as per UGC guidelines.

Diagram : FACOR Educational Institutions

Semester System

Semester system has been introduced from 1988-89 with the entire year divided into two semesters, each consisting of ninety teaching days. At the end of each semester, external examinations are conducted for 75 marks for each paper in a subject. 25 marks are allotted for internal examinations consisting of two test examinations (each of 10 marks) conducted in a centralized manner on par with semester end external examinations and an assignment of 5 marks. The mode for assignment is left to the individual teacher. Each student must secure a minimum of 8 marks in the internal examinations for passing. Grievance and Appeals Committee has been constituted. Paper setting and evaluation for semester end external examinations is done by persons outside the college, appointed from a panel of experts drawn by the respective Boards of Studies. The results of the examinations are monitored and reviewed. Remedial classes are conducted for the needy. Handouts are supplied to the students in advance.

Infrastructural Facilities

Out of the autonomous grant, a Xerox machine for the examination cell has been acquired. VCR and educational cassettes are purchased. Overhead projectors have been purchased. A perspective plan (Table 1 on next page) for three years has been prepared and approved by the various academic bodies.

Orientation

A Two-day orientation programme on Autonomy for the Principals and Heads of the Departments of the seven autonomous colleges was conducted during 23-24 July, 1988.

An orientation programme on College Autonomy for Students' Representatives of Autonomous Colleges was conducted during January 23-24, 1989.

A three-day workshop on Intensive Programme on leadership training and examination reforms was conducted from 24-26 February, 1989.

The office staff attended a one day Office Management Orientation at FACOR on 18 February, 1989. Under the aegis of the Parent-Teacher Association of the College, a district level competition in creative activities has been conducted in March, 1989.

NCC, NSS etc.

During 1988-89. an additional unit of NSS consisting of the students of I and II years (Autonomous stream) has been started. The Adult and Continuing Education Unit has adopted a nearby village (Tatiguda) for eradicating illiteracy. Subject Oriented Field Work has been planned to be taken up at the third year level of UG Course from 1989-90 onwards.

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* *Principal, SDS Autonomous College, Shreeramnagar-532 101 Distt. Vizianagaram, Andhra Pradesh.*

Motivation for Continuing Research

The College has on its faculty Five Ph.D. holders and Four M.Phil. holders. In order to motivate them to continue their research activities, expository lectures entitled "NAYEE DISHAYEN" on their topics of research are arranged regularly.

Need Based Courses

The consultation with various private and public industrial organisations in the country, the following Postgraduate Diploma Courses of one year duration with six months practical training in concerned industries are planned to be started from 1989-90 onwards.

1. PG Diploma in Drilling Technology.
2. PG Diploma in Mineral Engineering.
3. PG Diploma in Electronics.
4. PG Diploma in Qualitative Analytical Chemistry.

Visiting Faculty

Eminent Professors of Mineral and Chemical Engineering and Geology departments have been invited to our College under visiting faculty scheme and also to deliver guest lectures.

Exchange Faculty

Under this scheme certain portions of the syllabi are identified and faculty exchange from other Autonomous Colleges has been arranged.

Evaluation

At the end of each semester, students are given evaluation proformas, which are analysed after completion from them.

Earn and Learn Scheme

Proposals for creating round the year two week training programme on sericulture farming for unemployed rural youth are being finalised.

Recognition

The National Council of Material Handling. Jamshedpur in recognition of the pioneering efforts of the College has awarded a Rolling Trophy and a Gold Medal for introducing Material Handling as a subject of study at the undergraduate level.

The UGC has nominated the Principal of the College as a member on the Governing bodies of a number of Autonomous Colleges in Madhya Pradesh. ☐

Table 1 : Perspective Budget Proposals 1987/88—1989/90 of Autonomous Grant

Sl. No.	Particulars	1987-88	1988-89	1989-90
1.	Vising Faculty	—	5,000.00	10,000.00
2.	Additional Staff	—	20,000.00	40,000.00
3.	Development of Teaching and Reading Material, Seminars, Workshops, etc.	—	60,000.00	60,000.00
4.	Development of question Banks, Autonomous System and Examination System (Reforms)	5,500.00	15.000.00	10,000.00
5.	Audio Visual Aids	45,000.00	20,000 00	10,000.00
6.	Development of Monitoring Instruments & Evaluation	—	40,000.00	—
7.	Improvement of Laboratories	2,00,000.00	2,25,000 00	1,00,000.00
8.	Strengthening of Library	1,50,000.00	75,000.00	1,35,000 00 (including Xerox)
9.	Office Equipment & Furniture (Xerox Machine, Electronic Type-writer etc.)	70,000.00	1,00,000.00	25,000.00
10.	Sports and Cultural Activities	30,000.00	20,000.00	25,000.00
11.	Miscellaneous Expenses (T.A./D.A. for Meetings, Postage, etc.)	12,359 37	10,200.00	27,000.00
12.	Language Laboratory	—	—	1,50,000.00
		5,13,359.37	6,00,000.00	6,00,000.00

Alcoholic De-Addiction Programme of Andhra University

B. Vijayalakshmi*

> *"First the man takes a drink,*
> *then the drink takes a drink,*
> *and*
> *then the drink takes the man"*
> —Japanese Proverb

Despite the recent upsurge in the use of drugs like heroin, marihuana etc., alcohol has long been and still continues to be most extensively used, and also culturally the most important, drug so far.

Alcohol when taken immoderately leads to behavioural disorders, physical and psychological dependency, and social malfunctioning of the individual. It is also estimated that the life span of an average alcoholic is about 12 years shorter than that of an average non-alcoholic and alcoholism is considered as one of the major causes of deaths in the world. That is why almost all definitions of alcoholism emphasize it as disease with biological, psychological and sociological consequences.

The impact of alcohol on the individual and his social milieu is devastating. It leads to medical and psychological problems, creates marital and family problems, and is often fatal. Further, the problem assumes grave dimensions since majority of the alcoholics are married, and live with their families and are employed. Thus, an alcoholic might be playing several social roles at the time of his becoming an addict. These roles played by him as a spouse, employer, employee, parent, son, daughter, etc , are seriously affected by his addiction as he fails either completely or Partly to play them satisfactorily.

Organisations having alcoholics on their payroll pay the cost indirectly because of increased absenteeism, lowered work efficiency and lack of physical fitness to meet the job requirements.

Much has been said about the incidence of alcoholism among industrial workers. However, it is prevalent not only among industrial workers but also in other work settings like educational institutions. It is true that alcoholism cuts across all social strata. There has been much research on the problem of alcoholism and drug abuse among the students in higher education. Though this problem is also prevalent among the employees of institutions of higher learning neither there is research about it nor is there a provision of remedial services for them. The take home pay of these addicts is minimal. They take all the available loans such as PF loan, Children's education loan, marriage loan, etc., to mention a few, not for the purpose for which they are meant but only to spend the amout on alcohol. Many of the families of these alcoholics are impoverished and the wives have to find employment usually of menial nature to supplement the husbands' meagre contribution to family maintenance. The children of an alcoholic are deprived of proper placements in life.

In this context it is noteworthy that the Andhra University, Visakhapatnam one of the pioneering institutions of higher education in the country, has taken a lead in starting a De-addiction Unit for its alcoholic employees. According to the available information this is the first of its kind started by any university in the country for its employees. The programme was started on 19th November, 1987 in the North Campus hospital. A three-bed ward was given for the unit. The admissions into the programme are voluntary and the period of hospitalization is kept minimal i.e. for one week, with a view to help patients overcome the effects of withdrawal symptoms which develop in an alcoholic when he doesn't consume alcohol. The ward of a de-addiction unit is different from that of a regular hospital. The functioning of this ward is similar to that of a family ward in a psychiatric setting wherein families are encouraged to stay with the patients in the ward and to take care of them. During the period of hospitalization the patients are discouraged to leave the premises of the ward. Sometimes, the patient, when not physically dependent on the alcohol, might have stopped taking alcohol one or two weeks before hospitalization. In such circumstances antabuse treatment (the specific antabuse used is Esperal one tablet in the morning) is started from the second day of admission itself. Otherwise the antabuse treatment is started on the day of discharge.

**Reader, Department of Social Work,*
Andhra University, Visakhapatnam-530 003, A.P.

At the time of admission a detailed clinical and social history of the alcoholic will be taken with regard to the predisposing and precipitating factors, social conditions, marital relations, work life, level of motivation, etc., to construct a historical picture of his addiction. Also, the alcoholic and his family are briefed about the possible side effects of the medicine, the nature of treatment and the care to be taken and about the role of the wife in the success of the treatment.

The significant feature of this treatment is the emphasis it lays on the role of the wife in the treatment. By the time the alcoholic comes for the treatment his marital life is disturbed because of his failure to play the role of a spouse effectively. Also, once alcoholism has entered its more severe phase, some degree of family disruption almost invariably develops. To quote Kissin*, "once family disruption has taken place, a vital element necessary for independent social rehabilitation has been lost and the plunge into chronic alcoholism becomes more rapid and complete as the necessary resources for rehabilitation are less and less available". Thus special care is taken to keep the wife involved in the treatment process of the alcoholic so that she can have empathy with the husband and control over the ongoing treatment.

Group meetings with the wives of the alcoholics also help them overcome the difficulties encountered due to relapses, defaults and complications in the treatment process. Special supportive services are provided to the wife so that she can come freely to the treatment team for any help in regard to her husband's treatment.

Since the occurrence of alcoholism invariably leads to financial breakdown, most of these families are in dire need of financial help. As long as a person is under the influence of alcohol, he is not bothered about his financial position except about his daily allowance for buying alcohol. But once he recovers, the revelations about his financial situation become further precipitating events for a relapse. Hence, after care services are essential to maintain the gains of the treatment. A training-cum-production unit was started by the University to meet this goal.

At present about 15 interested wives of the alcoholics are trained in phenol making and cane weaving. These are employment generating programmes and their services are utilised in the Rehabilitation Centre. Also it is planned that this rehabilitation centre supports the treatment centre. This is because at present the University is spending about Rs. 600/- p.m. on each patient. As the University is a non-profit organisation it may be too much of a burden to spend that much amount on each patient per month. Hence, the rehabilitation programme is planned in such a way that part of the gains of the products of the rehabilitation centre should go for the maintenance of the treatment centre making the total programme self-sufficient.

The approach to treatment is team approach with a multidisciplinary team working for the alcoholic. This team consists of a psychiatrist, two medical doctors, a nurse, a social worker, a psychologist, an anthropologist and a senior officer of the University. Except the psychiatrist who is paid an honorarium, others are from the University departments and they work voluntarily.

So far 69 alcoholic employees have enrolled themselves for the treatment out of whom 6 have successfully completed one year of treatment and others are still undergoing treatment. Though at present these 6 patients are not given Esperol they are encouraged to come to the Unit on the day of admissions which is once a week and discuss about their progress with the team members. And also, some of these are made to 'adopt' difficult patients and monitor their treatment. This approach seems to be working well as there is one to one relationship between these.

The Department of Social Work has identified this de-addiction unit as its field work training centre and students specialising in the field of medical and psychiatric social work are placed in it for their field work. These students assist in making home visits.

TO OUR READERS

Knowledgeable and perceptive as they are, our contributors must not necessarily be allowed to have the last word. It is for you, the readers, to join issues with them. Our columns are as much open to you as to our contributors. Your communications should, however, be brief and to the point.

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* Kissin, Benjamin; "Theory and Practice in the Treatment of Alcoholism," In Kissin, B and Begleith, H (eds). *Treatment and Rehabilitation of the Chronic Alcoholic.* New York, Plenum Press, 1977, p.21.

Rainfed Agriculture Revisited

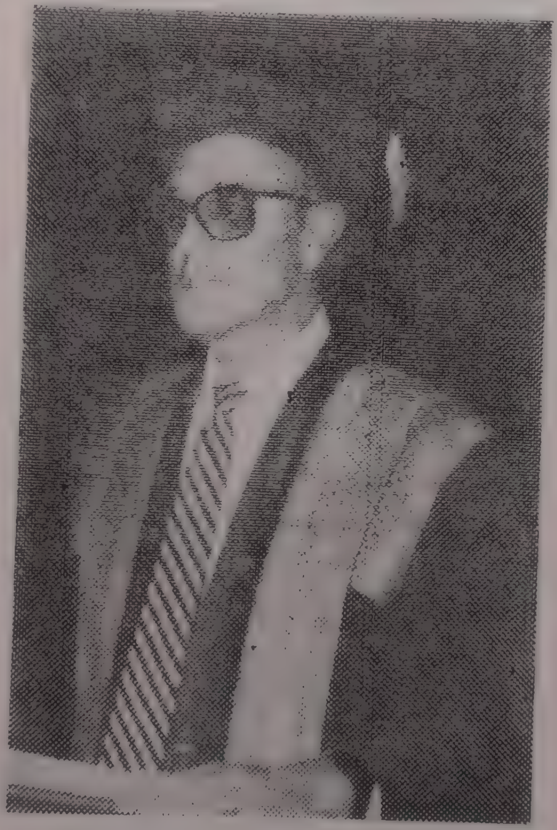
Dr. L.D. Swindale, Director General, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Hyderabad, who delivered the Convocation Address at the Seventeenth Annual Convocation of the Haryana Agricultural University not only presented a status report on the advances in rainfed agriculture but also predicted directions for its future growth. Excerpts

Introduction

In 1981 I was invited by the Coromandel Fertiliser Company of India to deliver their annual Coromandel Address. I chose the subject of Rainfed Agriculture.

The essence of my message at that time was that rainfed agriculture needed more attention from Government, that the rainfed areas had not contributed significantly to the great advances in agriculture that have occurred in this country over the previous 30 years, that the people of the rainfed areas were among the poorest in the land, that some improved technology did exist and could be exploited, and that a national demonstration program to make farmers aware of the advantages of using a combination of improved seeds and fertilisers, with improved soil and water management where possible, showed promise of improving the productivity of and production from the rainfed areas.

There has been, I am pleased to say, some progress. But there is much more to be done. There is hard evidence to show that programs to improve rainfed agriculture have been undertaken with success. Several national schemes such as the Integrated Rural Development Programme, and the Drought-Prone Areas Program, have had their impact. State government programs of Food for Work and Employment Guarantees have also contributed to the improvements that we find. And the Centre and the States continue to give rainfed agriculture a high priority. But there is a long way to go and the work must be continued, be augmented, and expanded.



Dr. L.D. Swindale delivering the convocation address

High-priority attention to the rainfed areas is till necessary for reasons of equity, efficiency, and sustainability.

Prelude and Progress

During the most intensive phase of Village-Level Studies program of ICRISAT, which commenced in 1975 and continues in attenuated form today, ICRISAT scientist lived and worked from 1975 to 1985 in three and, part of the time, in six villages in rural India, two in the red soil areas of Mahboobnagar District in Andhra Pradesh, two in the black soil, postrainy-season (rabi) tract near Sholapur in Maharashtra, and two in the comparatively well-watered black soil areas near Nagpur, also in Maharashtra. In the six villages mean per capita income at the start of the study was only Rs. 500 in 1977 prices. The All-India mean, by comparison, was Rs. 1080. Food exceeded 60% of consumer expenditure. Using one of the standard indexes for poverty [as proposed by Dandekar and Rath (1971), that is, Rs. 15 in monthly per capita expenditure, 75% of the people of these villages fell below the poverty line. Income criteria for poverty gave less devastating figures of 40 to 60%, which compare more closely with the figure of approximately 40% given for rural India as a whole in the national sample survey for 1977/78. Landless labour, small farmers, medium farmers, and even some large farmers, as defined by areas of land holdings, all fell within this net.

As could be expected in such circumstances, nutritional standards also fell below national averages. The primary deficiencies were in energy, vitamins A and C, calcium, and riboflavin. The vitamin deficiencies were particularly acute, being less than half the Indian standards. The group most at risk were children from 1 to 12 years, 10 to 15% of whom had energy intakes less than 50% of the national standards. There were, however, few cases of severe malnutrition. Furthermore the percentages of malnourished children were much less than the 40 to 60% estimates obtained by some other investigators. Internal parasitism was high in several villages. As mentioned in my

Coromandel Lecture, the problems of parasites could be reduced if villagers are more cooked meals.

Now to record the progress. From these base-level figures the real per capita income has risen by Rs. 20 to Rs. 30 per year over the 9-year period of the studies, that is, 3 to 5% per annum. Furthermore, the poorest households have received as much, or more growth as the richest. Labourers in these villages are receiving increased real wages. Government employment schemes have assisted this improvement. But positive change has occurred, although to a lesser extent, even in places where these do not exist. The labour market is tightening in the semi-arid rural areas. Indeed there is permanent migration of labour to the higher-potential rainfed areas. Low inflation over the period of the studies has also helped improve village welfare and real net income. Land ownership has increased and it appears that many previously landless people now have ownership rights to small amounts of land; some, indeed, to significant amounts. Land markets have developed in rural India and, supported by land reform legislation, have had a desirable impact upon land distribution and rural welfare.

Although the increases that have occurred give some cause for satisfaction and optimism about the continued application of schemes for rural improvement, it must be emphasised that the indicators still show that the people of rainfed areas are very poor. Per capita incomes in 1984 were only about Rs. 1200, and 50% of the people were still living below the poverty line.

There is also another, technological, reason for diverting resources to rainfed agriculture. Today we are much concerned about the sustainability of our developmental efforts and the impact that development has upon the environment. Surely it is not necessary for me to tell the people of Haryana that large-scale irrigation schemes are difficult to sustain, and that rising salinity blights the land. About 53,000 ha of cultivable land in Haryana is salt-affected.

Dr. J.S. Kanwar, who recently retired as Deputy Director General of ICRISAT, in his Deena Bandhu Sir Chhotu Ram Memorial Lecture of 1986, pointed out that the soil of the dry farming research station at Rohtak had a pH of 7.5 in 1939 and the water table was more than 35 feet below the surface. After the introduction of canal irrigation, the pH of the soil rose to 10 and the water table came to within 5 feet; and all this just in 20 years. Also, as he pointed out in that lecture, Haryana is a basin with little external drainage. Well-planned and integrated efforts are necessary to keep the water table and the salt in check. But it is surely wise to limit the expansion of large-scale irrigation systems. The rainfed areas must, therefore, contribute more to future agricultural growth in this state.

Progress in Technology

Mellor and Desai (1985) in an interesting article on Agricultural Change and Rural Poverty, associated the improvements in incomes and wages in rural India with the Green Revolution, that is, the improved productivity of rice and wheat that has occurred through the use of improved varieties, fertilisers, and better control of irrigation waters. Our own investigations in dryland agriculture find similar relationships between improved rural welfare and agricultural change, but only in those areas where monsoonal rains, and particularly the onset of the rains, are reasonably reliable. In drier areas, such as Mahboobnagar or areas where the onset of the rains is more variable, such as the post-rainy-season tract, relationships between income and technological change have yet to be demonstrated. Viable technology is still not available for these areas, but we may be optimistic about the possibilities of future success. Here are a few indicators of technological progress.

Jha and Sarin (1984) pointed out that fertiliser use in the rainfed districts between 1977 and 1980 was only about 18 kg/ha compared with 56 kg/ha in irrigated districts. In 1984-87 the rates were 26 kg/ha and 72 kg/ha, respectively. The rate of growth in fertiliser consumption in non-irrigated areas was significant at about 1 kg/ha per year of total nutrients (Fig. 1). Some reduction in usage occurred during the years of drought from 1982 to 1984. The spread of improved varieties and hybrids of rainfed cereals, such as sorghum (jowar) and pearl millet (bajra), have also contributed to the improvements in the productivity of rainfed agriculture. In western rainfed districts of Haryana, Jansen (1988) found that improved hybrids of pearl millet produced by this University make up as much as 40% of the varieties used by farmers. It is a remarkable achievement of HAU that HHB 50 has been recommended by the Central Variety Release and Notification Committee for cultivation throughout the country. Greater extension efforts could increase the use of improved pearl millet hybrids in Haryana. In some other parts of the country they are used by virtually all farmers in the rainfed areas.

Sorghum is probably the most important cereal crop of the rainfed areas in this country. Sorghum productivity, that is, yield per hectare, has grown at a compound

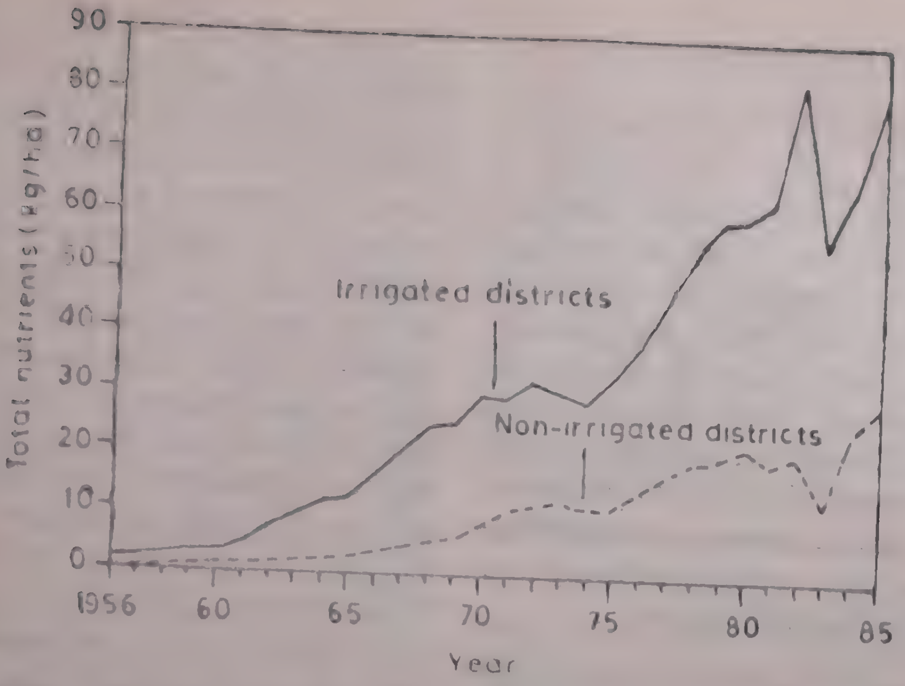


Figure 1. Growth in fertiliser consumption in irrigated and non-irrigated districts of the dry Indian semi-arid tropics.

growth rate of 2.2% since the early 1960s. The growth in productivity has more than offset the slight decline in area under sorghum, resulting in a 1.5% compound growth rate in production. These increases in productivity and production are particularly significant because they have occurred without significant support by the Government. They have been achieved by the farmers themselves through the use of improved technologies and improved management. The ICAR and all the agricultural universities that serve the rainfed areas deserve credit for their contributions to these significant achievements.

I know a figure of 2.2% growth may seem small to you. But it exceeds the rate of growth in productivity in rice in this country over the same period, and in recent years the rate of increase in productivity of sorghum has matched that for wheat. And wheat are the crops that receive substantial government support. Much has been said in recent years about the great successes achieved in the production of wheat and rice. The successes that have occurred with sorghum and pearl millet have been over-looked. Perhaps it is time to redress the balance. True, the production of these crops has not increased much over the last 20 years, but productivity is not the constraint. The demand for these crops does not increase; that is the problem. As productivity goes up, prices go down. The wholesale real price for sorghum has decreased by more than 30% from 1971 to 1985. For pearl millet the decrease has been about 20%. Figure 2 shows that the decline has been continuous and steady except for the period in the mid-1970s when the pearl millet crop was devastated by the disease known as downy mildew. These declines in prices are clearly tough on the farmer and take away his incentive. They are undoubtedly, major contributors to the slow growth in production. But bad news for the farmer is good news for the cousumer. Coarse grains are the staple foodgrains of the poorest people of this land. And we know that the greatest benefit that technology can bestow upon the poorest of the poor is to reduce the cost of their basic staple foods. By this criterion alone the program for improvements in rainfed agriculture has been a noteworthy success.

Prospects for Use of Rainfed Cereals

The traditional crops of the rainfed areas are cotton, sorghum, pearl millet, pulses, oilseeds, and a range of vegetable crops. The cereals make up by far the largest proportion of the total. Growth in productivity of the rainfed cereals can be expected to increase at a compound rate of between 2 and 3% per year for the next few years. But, as already pointed out, production is constrained by demand. The prospect therefore is for continuing decline in real prices to the farmer. Not a very happy prospect to look forward to. If Government were to change its policies with respect to the rainfed areas--as it has promised to do—and support the prices of coarse grains, there would likely be a spurt in production and a surplus of unwanted grain in Government hands. Demand for these rainfed cereals, therefore, must be increased.

The traditional uses of sorghum and pearl millet for 'roti' for porridge are not likely to increase; rather they are likely to decline. There is a clear switch in consumer preference towards rice and wheat for human consumption. Fortifying sorghum or pearl millet flour with proteins from soybeans, mustard, or other sources would be nutritionally beneficial to traditional consumers; but the practice is not likely to have much impact on demand. The use of prepared breakfast foods is likely to increase in India, albeit more slowly than it has in other countries. Sorghum and pearl millet could find a niche in this market if the food processors and packagers had the interest and desire to develop suitable products. As illustrative of these possibilities, oats has made a spectacular comeback in the United States as a direct human food in the last few years. Once used only in porridges—like coarse cereals in this country—and as feed for horses, oats has appeared in prepared breakfast foods because of its cholesterol-controlling qualities. The country of Burundi in Central Africa, where the average annual per capita income is far lower than for millions of Indians, successfully utilises sorghum in weaning foods for children. What are the prospects for similar uses of either sorghum or the millets in India?

Clearly, the most promising avenue for the future increased use of the coarse cereals in this country is as animal feed, either as feed grains or forages. Haryana already makes great use of sorghum forage for stall-fed animals. Forage crops occupy 10-12% of cultivated area in the state. Haryana could, and should take the lead in promoting such uses throughout the country. HAU's forage sorghum varieties HC 171 and HC 260 have already been released at the national level. It is worth remembering that forage cereals do not have to wait to reach maturity before they can be used, and to this extent they are much more adaptable both to market demand and to the vagaries of climate.

There are many studies in India that have pointed to the potential for increased small-animal production, to increase the income of small farmers and to provide additional employment. The potential is known, but it is not being realised. Perhaps some of the studies and their conclusions are unsound, but I am not aware of what the problems are. It seems to be an area of great importance because of the income-earning prospects, improvements in nutrition through greater use of animal products, greater rural employment, and, not least, the possibilities for increased utilisation of rainfed cereals.

Prospects for Grain Legumes

The potential for increased production of pulses and oilseeds is now being well addressed throughout the country. There are many examples of successful demonstrations to farmers of the newer, higher-yielding forms of pulses, groundnut, and mustard. The Haryana Agricultural University, and particularly its renowned Krishi Gyan Kendras, have made a substantial contribution to these efforts to bring new technologies to the farmers.

Over the last 2 years in cooperation with the Department of Agriculture in five states in the centre and south of the country, and with the Central Government as well, ICRISAT has been involved in a substantial programme of adaptive research and demonstration of improved technologies for groundnut, pigeonpea and chickpea.

In 1987 the Government of India asked for ICRISAT's help to increase the productivity of groundnut. At a meeting held in April, trials in six states were planned. At ICRISAT a new unit, the Legumes On-farm Testing and Nursery Unit, called LEGOFTEN, was formed to coordinate and monitor the trials. Groundnut yield maximisation trials started in the 1987 rainy (kharif) season and continued through 1988 including the present postrainy season. The states were selected taking into account varied climates, rainfall, soils, and pest and disease incidence. Before the trials started a meeting of extension workers responsible for them was held at ICRISAT to discuss basic and applied aspects of groundnut improvement. Soils from trial sites were analysed, disease and pest histories discussed, varieties identified, and a package of practices was formulated for each location. The Government provided the funds to conduct the trials, while ICRISAT provided seeds of improved varieties where possible. The trials were frequently monitored by the LEGOFTEN team. Data from three seasons' trials on Government Farms are given in Table 1. The trials provide an opportunity to study the influence of two contrasting rainy seasons, because 1987 was droughty and 1988 had excessive rainfall.

The extension services of the

Table 1

Effect of improved cultivation methods on groundnut yields, 1977-88.

Number of trials	Season	Cultivation method	Variety	Irrigation	Average yield (kg/ha)
11	1987 Rainy	Improved	Improved	Yes	3272
9	1987 Rainy	Local	Local	Yes	1204
2	1987 Rainy	Improved	Improved	No	2175
2	1987 Rainy	Local	Local	No	550
14	1987/88 Postrainy	Improved	Improved	Yes	3817
14	1987/88 Postrainy	Local	Local	Yes	2250
11	1988 Rainy	Improved	Improved	No	1910
11	1988 Rainy	Local	Local	No	1090

states took up similar efforts to improve groundnut production in farmers' fields through improved cultural practices. Local varieties of the crop had to be used because of the shortage of improved seeds. In 250 trials in 5 states across both rainy and postrainy seasons, improved practices yielded 1874 kg/ha on average on 188 plots and local practices yielded 1586 kg/ha on 62 plots. In addition to the use of improved seeds and better cultural practices, farmers found that the use of broadbeds and furrows gave significant increases in yield over flat cultivation.

Short-statured, short-duration pigeonpeas (arhar) have similar potential. The LEGOFTEN Unit has also been involved with similar trials with pigeonpea using the new varieties, Pragati and ICPL 151. Overall results are very promising. It is my understanding that ICPL 151 is already finding favour in this state. It seems very likely that the new cultivars will bring about a permanent change in the productivity and production of this important pulse crop which also returns nitrogen to the soil and provides up to 30 t/ha of fuelwood.

Chickpea (chana) is the most important pulse crop in India and in this state. It is also the crop on which the cooperation between HAU scientists and ICRISAT scientists is most intense. We are working together to improve the ability of chickpea to stand up to periods of cold and moist weather and thus increase the earliness and productivity of the crop.

I predict there will be rapid increases in the uses of these new varieties of legumes over the next few years. It should lead to a stabilisation in prices, which have been very erratic in recent years, as shown in Figure 3, and in sharp contrast to the sorghum and pearl millet prices shown in Figure 2. t is neteworthy that groundnut prices have not varied so much as the prices of pulses because of the stabilising effect of the importation of vegetable oils. Seed is a major constraint to increased production of legumes, which HAU, with its well deserved reputation for breeder-seed production, might be able to help overcome. The Krishi Gyan Kendras must be ready to meet farmers' needs training in the new cultural practices.

Concluding Remarks

As I have been at pains to point out, there is potential for increased production from the rainfed areas through more productive technology and improved management by farmers. But the potential will come to naught if the institutional services and infrastructure are not provided. Here governments must play a role. If they do not, the promises to give priority to the rainfed areas will seem like empty words. I have already mentioned the need to create greater demand for the coarse cereals, and the shortage of seeds of improved varieties of oilseeds and pulses. There is also evidence from this last season that marketing and distribution systems are weak, resulting in local surpluses of production and calamitous falls in prices. When things like that happen, farmers can be excused for being sceptical of government exhortations to increase production. □

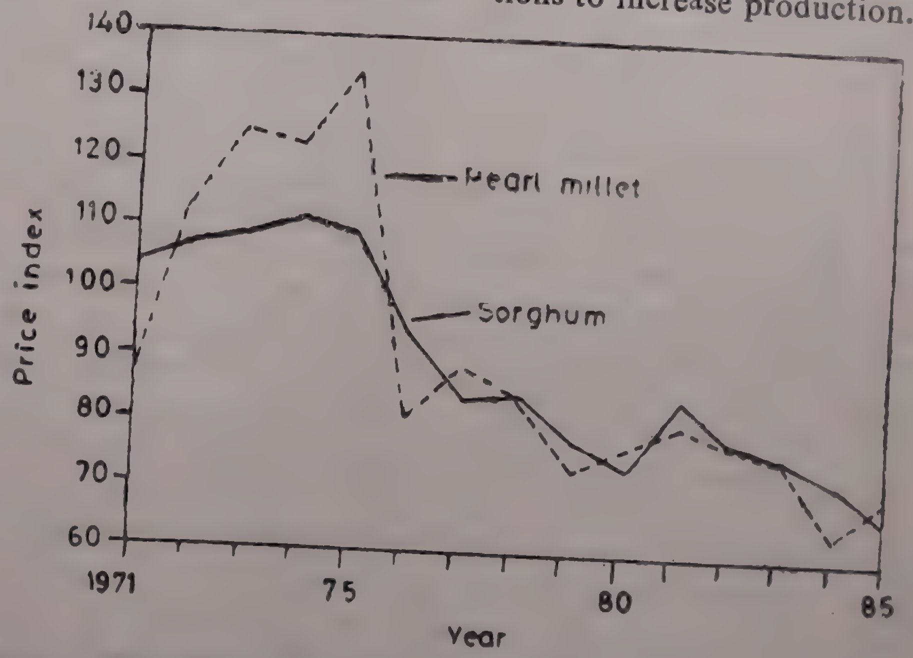


Figure 2. Wholesale real price index (base 1970/71 = 100) for ICRISAT cereals.

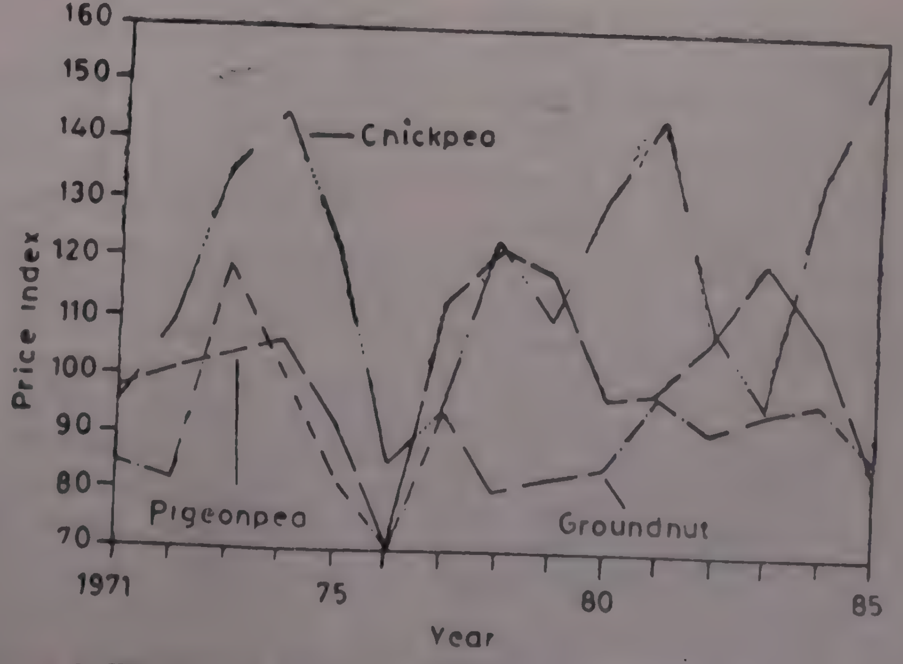


Figure 3. Wholesale real price index (base 1970/71 = 100) for ICRISAT legumes.

Gharanas in Hindustani Music

A two day symposium on the Survival of Gharanas in Hindustani Music was held on 18-19 February, 1989 at the Faculty of Performing Arts of the M S. University of Broda. Eminent musicians and musicologists from the state of Gujarat participated in the symposium by presenting their papers, illustrating with the music wherever necessary. A very wide range of topics connected with the main theme was covered in the symposium. Several Gharanas, i e. schools and styles of classical music, particularly in the Khyal style of music, were discussed in the context of their survival—i.e. the tradition and the changes noticed in their modern innovation. Both vocal and instrumental schools of music were covered, focussing greater attention on the Kirana Gharana Gayaki, Gwalior Gharana Gayaki, also that of Patiala, Atrauli and Bhendi Bazar Gayaki; and also some of the main Gharanas in Sitar and Tabla. The Gharanas and their ideals are akin to Guru-Shishya Parampara and are very much relevant to higher education in music in universities and institutions of higher learning.

The Symposium was inaugurated by Prof. R.C. Patel, Vice-Chancellor, M.S. University of Baroda. In his inaugural address, Prof. Patel exhorted Scholars to utilise the occasion for giving a meaningful interpretation to the Indian Traditions in music and the efforts required to regenerate the traditions by an innovative spirit. He added that music education had its beginning in the School of Music founded by Maharaja Sayajirao Gaekwad in 1886 and with that backdrop the platform provided by this Symposium should be utilised in the best possible way. Shri Ranjit Sinh Gaekwad, Member of Parliament and himself a musician—who was the Chief Guest, drew the attention of the assembly towards the strengths in the Gharana System as well as the limitations observed in the system.

Prof. R.C. Mehta, Director of the Symposium, speaking on the significance of the symposium said that the Gharana connection may mean one thing or the other : it would serve as an introduction in the profession or as a boast of one's musical standing; and ready musical and social identity; inheritance of the secrets of the art, a draw on the music lover; a hide or a recluse, as ancestral musical linkage and deep reverence for the elders, as a faithful or prideful following,—and under such a burden of meanings a critic has a tough task before him in sifting the artistic wheat from the promotional chaff. The best and the worst of Guru-Shishya Parampara are mingled up in the Gharana tration.

The topics discussed at the symposium included : Relevance of Gharanas—the contemporary scene; Ideals of presentation in Sanskrit texts on Music; Broadcasting in India and the Gharana styles; The Gharanas and the present Scenario; The Bhendi Bazar Gharana style of music; Gharanas—An overview; Tradition & Survival of Gharanas in Thumri style; Alladiya-Atrauli style & their modern followers; Music Education & Gharanas; Schools/Styles in Visual Arts—Their relevance to Music; Gharanas : Looking Inwards; Haveli Sangeet—its past and present; The Patiala Gharana—Tradition & Change; Survival—Renewal of Gwalior Gayaki and Pt. Omkarnathji: Tradition in Soroda—Vadan; The Survival of main Gharanas in Tabla Vadan; Gharanas styles in Sitar; The Indore Gharana in Sitar; Technical Diversities and Sitar style; The contemporary instrumental music & Gharanas; The Banaras Gharana in Tabla—The present tradition; The Gwalior Tradition; Tradition & Change; The Agra Gharana style—Tradition & Change; and The Kirana Gharana Gayaki—the modern innovations.

Conference o
Library Services

Shri Bhishma Narayan Singh Governor of Assam and Meghalaya, stressed the need for expanding the information network and librar service to remote areas in the Nort Eastern Region. Shri Singh, who i also the Chairman of the North Eastern Council (NEC), was addres sing a conference on the development of library services and information system in Guwahati recentl He said the public library service should be developed both in term of quality and quantity. There wa considerable scope for develop ment of these services in the region he felt.

The Governor said the NEC wasaware of the problems bein faced by library officials in th region. The Regional Advisor Committee, set up by the NEC has already initiated measure towards implementation of th recommendations made in th inaugural meeting on the develop ment of library services. He appea led to the Universities, departmen of education and libraries, bot official and unofficial, to exten their support in developing regional information system.

In his presidential address, La Minister Shri S.N. Medhi said villag libraries were being set up in th

State and efforts made to expand the network further. He appealed to the NEC for help in this regard.

In his welcome address Shri S.P. Bagla, Senior Planning Adviser, NEC, explained the objective of the conference and said it had been organised to ensure an exchange of views and ideas among the Vice-Chancellors, Heads of education departments and library services on various aspects of development of library services in the region.

The conference, organised jointly by the NEC and Assam Government, was attended by the Vice-Chancellors, the Education Commissioners, Secretaries and the Directors of education of the seven State Governments.

Nuclear Science Centre for Madras Varsity

The Syndicate of the Madras University is reported to have approved a proposal to establish a Nuclear Science Centre at the University linking it with the Indira Gandhi Centre for Atomic Research, Kalpakkam.

The proposed centre at the university will have six major units: a cyclotron facility for production of short lived position emitting nuclides; a linear electron accelerator; a laser laboratory; a trace analysis laboratory; a radiation measurement laboratory; a radiobiology laboratory.

A total of Rs. 1,500 lakhs is planned for this Centre during the Eighth Plan period.

Varsity-Industry Nexus

A National Seminar on Industry's Expectations from an Institute' was held during March 10-11, 1989 at the Institute of Technology, Banaras Hindu University. Organised by the Industrial Consultancy Centre (ICC) of IT-BHU, the Seminar was inaugurated by Shri R.C. Sethi, General Manager, Diesel Loco Works. The keynote address was delivered by Shri S.D. Bhasin, Chairman, Vindhyachal Distilleries Pvt. Ltd. (Bhopal). A theme paper was presented by Prof. B.B. Dhar, Vice-Chairman, ICC.

Shri R.R. Shah, Commissioner of Varanasi who was the Chief Guest at the Valedictory Function, advised the ICC to take lead in innovation, organisation and development of interfaces between the Industry and Institutions giving examples of Japan. He also pointed out that the emergence of the Energy Capital of India close to Varanasi will provide the Institute for large scale interaction in near future.

Prof. R.P. Rastogi, Vice-Chancellor, BHU in his presidential address expressed his appreciation for the work done by the ICC and the depth and breadth of the deliberations of the Seminar. He expressed his view that the work done should be useful to the Society as wished by the Founder of the University, Pt. Madan Mohan Malaviya.

The Seminar concluded with the formulation of specific recommendations on the mutual expectations of the Industry and the Institute for effective interaction.

Over 120 delegates participated in the seminar.

Gour Vishwavidyalaya's Academic Staff College

The Academic Staff College of Dr. Harisingh Gour Vishwavidyalaya organised eight Orientation Courses during 1988-89 at which 257 teachers participated—15 were from the University teaching departments of Sagar, Gwalior & Rewa and 234 were from the Colleges affiliated to these Universities. 8 teachers were from out of the catchment area of the ASC.

The Course content covered four broad areas, viz. (a) Awareness of Linkages between society, Environment Development and Education; (b) Philosophy of Education, Indian Education, Indian Education system, and Pedagogy; (c) Subject Upgradation i.e. enabling the teacher to translate the relevant syllabus into detailed plan of action and acquainting him with the advancement of the subject concerned; (d) Management and Personality Development.

All these components were covered through lectures, group discussion, Debates, Panel Discussions, Seminars, Symposia, Extempore Speech, Spot Writing, Brain storming, Educational Films available in the University and visits to various museums, laboratories etc., in and around the University.

Academic Staff College of BHU

The Academic Staff College of the Banaras Hindu University (BHU) has completed five courses in Phase I in which faculties of Social Sciences, Arts, Commerce, Management, Performing Arts, Visual Arts, Science, Education and Law participated. According to Prof. B.B. Dhar, Director of the Staff College, about 150 participants benefited from the courses out of which 15% were drawn from other than BHU institutions.

In Phase-II orientation course for 3 weeks in Hindi has been completed in which 20 teachers, drawn from northern and central region as suggested by the University Grants Commission, participated. In all 28 sessions were conducted for the orientation programme. Orientatation course in law for northern, central and eastern region is now in progress and will be followed by one in Mathematics for estern region.

The Academic Staff College plans to publish publication of the proceedings of the various training programmes.

About 300 sociologists from all over the country participated in the conference.

Deptt. of Health Services Studies

The Tata Institute of Social Sciences, Bombay has established a new Department of Health Services Studies from January, 1989, initially funded by the Ford Foundation for five years. The objectives of the Department are to organise long-term and short-term training programmes in the area of health and hospital administration, to undertake research and field action projects in the area of health services delivery, and to develop training materials and other publications in this area of health and hospital administration.

TISCO Chair

To commemorate the Golden Jubilee of the Tata Institute of Social Sciences, Bombay (1986-87), the TISCO Chair was established in the field of Personnel Management and Industrial Relations by the Tata Iron and Steel Company, Jamshedpur. Mr. Bhagaram Tulpule, an eminent Trade Union Leader, is the first person to be nominated for this Chair for the year 1988-89. Mr. Tulpule is the Past President of the Hind Mazdoor Sabha and has worked as the General Manager of Durgapur Steel Plant. He has written a number of articles and has attended several national and international conferences on the trade union movement.

News from Agril. Varsities

Research Thrusts at TNAU

The 26th Research Council Meeting of the Tamil Nadu Agricultural University (TNAU) was held on 2.3.89 at Coimbatore. Dr. S. Jayaraj, Vice-Chancellor, presided.

In his presidential address, Dr. Jayaraj stated that in tune with National Policy on the need for grassroot level based planning, the TNAU has been exercising great care in identification and implementation of new research programmes. Problem solving, location specific researches are undertaken. The status reports of the seven agroclimatic zones, which are now under preparation, would serve as base document for planning research and extension programmes for each zone. Advocating the concept of regionalisation of research, the Vice-Chancellor thanked the NARP (National Agricultural Research Projects) for helping TNAU to strengthen the staff and infrastructural facilities which have greatly promoted inter-disciplinary approach and research-extension linkage.

To effectively meet the projected requirements for Tamil Nadu State by 2000. AD, TNAU has reoriented its research programmes in following ways :

- Employing newer breeding techniques like biotechnology, tissue culture, anther culture and genetic engineering for quicker and better results.
- Emphasis on genotypes for special situations like drought, salt affected soils and excessively permeable soils.
- Intensification of research for an indepth understanding of soil health crop productivity interaction to raise productivity and efficiency.
- Replacing 'Crop approach' with 'farming system approach to ensure consideration of the farmer in totality and insure better security.
- Identification of alternate methods to minimise the loss in energy output from land during drought, identification of physiological constraint for low yield and introduction of new tree species.
- Exploitation of low external input agriculture on agro-ecological base: New insights into the ecology of soils, natural vegetation, insect population have made considerable contribution to the development of technologies that may be used in low external input agriculture. Environmental pollution studies in all river command areas will be taken up.

Intensified research thrusts in

Animal Husbandry, Agricultural Engineering, Horticulture, Forestry and Fisheries were also discussed in the research council meeting. The thrust areas of research under animal sciences include modernisation of animal genetic programmes with embryo transfer, biotechnology and genetic engineering. Disease surveillance and monitoring, Meat processing technology will be given due emphasis.

Initiation of frozen semen technology of goat semen and investigation of local goats of Tamil Nadu and recording their genetic parameters for planning the breeding strategy in goats will be the future strategy. Experimental cross breeding with local breeds of sheep and confirmation of causal agents in Japanese encephalitis in pigs and feed conversion efficiencies will be stressed.

The important areas under fisheries include marine prawn breeding, mussel farming, edible oyster culture, pearl culture and marine fish production. In addition to it, the development of composite fish culture and fresh water prawn farming, emphasis on inland aquaculture fish processing technology and fishery biology.

Azolla as biofertiliser and as feed for fishes and optimum combination of poultry, piggery and fishery are felt as important areas to be investigated.

The consensus arrived at the meeting was to initiate fishery research studies in all campuses of TNAU.

In the field of agricultural engineering, greater focus will be on Farm power machinery, postharvest technology, soil and water conservation, bio-energy and agricultural structure. Intensive research efforts for exploitation of non-conventional energy sources will also be undertaken.

Water stress studies by Water Technology Centre will be undertaken on large scale. Monitoring the environmental degradation in soil and water will also be undertaken. A scheme on this will be started operating at Kodaikanal.

The areas deserving prioritisation under social engineering include the approaches for rapid rural development with emphasis on model building, village adoption programmes for rapid technology transfer and policy options for development with special attention to prices, subsidy, income distribution, research and extension, market regulation and credit.

As far as forest research is concerned, the research focus will be more on survey of forest insects/diseases and evolving effective control measures, use of growth promoting agents, hormones, nutrient sprays, mycorrhizae etc, Enhanced emphasis will be laid on social forestry and agro-forestry, silvipastural and agro-horticultural system to solve the fuel and fodder problem.

Pashu Vigyan Divas

Dr. R.P.S. Tyagi, Member, Agricultural Scientists Recruitment Board, Indian Council of Agricultural Research (ICAR) recently inaugurated the Pashu Vigyan Divas at Hisar organised by the College of Animal Sciences, in collaboration with the State Department of Animal Husbandry, the College of Veterinary Science and the HAU Directorate of Extension Education. Dr. Tyagi urged the scientists and the government functionaries to lay more stress on extension activities in animal husbandry. He said that though there had been a lot of emphasis on production other aspects like production, management, housing, nutrition, and fodder needed to be looked into. Latest knowledge regarding these aspects needed to be carried to the farmers with more vigour and intensity.

Dr. Tyagi disclosed that at present only 0.42 per cent area of the total cultivable land in the country was under fodder crops. It was therefore necessary that fodder cultivation was promoted and developed for a healthy livestock in the country.

Dr. S.C. Chopra, Dean, College of Animal Sciences said that the objective of organising such a Pashu Vigyan Divas was to create an awareness among the livestock owners and farmers about the role of animal sciences in boosting up rural economy. He said it would also provide a common forum to the scientists, the farmers, the functionaries of the state department of Animal Husbandry and the students associated with livestock department.

Referring to the academic advantages of the Divas, Dr. Chopra said that it would give practical experience to the students for organising animal shows as also impart practical orientation.

The main feature of the Pashu Vigyan Divas were a livestock competition in which besides cows and buffaloes, sheep, goats, pigs, horses, camels and poultry had also been brought. HAU scientists demonstrated scientific achievements in the field of animal production and health care, which have direct relevance to the field conditions.

TNAU Develops Tapioca Peeler

A machine for peeling the cork layer (skin) of the tapioca tubers has been developed in the Post Harvest Technology Scheme of the Department of Agricultural Processing, College of Agricultural Engineering of the Tamil Nadu Agricultural University. The machine consists of a rotor of diameter 25 cm and length 30 cm. The cutting blades have been mounted along the circumference of the rotor with a blade angle of 50°. The machine is powered by 1 HP electric motor. The capacity of the machine is 9 quintals of tubers per hour. The peeling efficiency and the percentage starch loss while peeling are 85 per cent and 4.5 per cent respectively. The cost of peeling with machine works out to Rs. 1.50 per quintal as against the cost of Rs. 12 per quintal in the conventional method of manual peeling. The saving in cost is found to be 87 per cent. The cost of the unit with electric motor is Rs. 3500 each.

Biofertilizers Enhance Sunflower Yield

In view of increasing trend in the usage of sunflower oil, the Tamil Nadu Agricultural University conducted field trial to find out the effect of inoculation of *Azospirillum* and VAM fungi on sunflower Var Co. 2. Inoculation of *Azospirillum* and mycorrhizal fungi either individually or in combination increased the seed yield and which varied from 5.5 to 13.3 per cent over uninoculated control. The dual inoculation along with recommended level of phosphorus recorded the maximum seed yield of 952 kg. ha. whereas uninoculated control recorded only 869 kg/ha.

News from UGC

INSAT-1B Programme of UGC

Between 17th April to 30th April, 1989 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV Network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

17.4.89

"Classical Mechanics—III Newton's First Law"

"Banking Part I—Types of Deposit Accounts"

"Bridges of Help—Ticks"

18.4.89

Holiday

19.4.89

"X-Ray Crystallography—Recent Trends"

"The Precious Casket"

"Birds of the Night—I"

20.4.89

"Introduction to Computers—III"

"A Volcano is Born"

"The Story of Writing—The Chinese"

"Writing System—II"

21.4.89

"Story of Our Universe—II"

"Presidential Election in the USA—II"

"Waste Water Disposal in Oil Refineries"

22.4.89

"Bridges of Culture : Overseas Students in India"

"From Gloom to Bloom"

23.4.89

No Telecast

24.4.89

"Classical Mechanics—IV Newton's Second Law"

"Banking Part II—Special Types of Account Holders"

"Irrigation Management—Action Programme Under Mahikadana Project"

25.4.89

"Food Preservation—III"

"What is Behaviour"

26.4.89

"Treatment of Raw Water for Drinking Purposes"

"Mohanjo-Daro"

"Birds of the Night—II"

27.4.89

"Introduction to Computer—IV"

"The Nile in Egypt"

"The Story of Writing—The Indus Script"

28.4.89

"Story of Our Universe—III"
"India's Challenge"
"Coastal Protection"

29.4.89

"NISTAD"
"The Genius of Leonardo"
"University Round Up"

30.4.89

No Telecast.

COHSSIP Operative in Over 500 Colleges

The College Humanities and Social Sciences Improvement Programme (COHSSIP) of the University Grants Commission is at present being implemented in 541 Colleges. Of these, 498 are Arts Colleges and 43 Teachers Training Colleges.

The Commission brings colleges within the purview of the COHSSIP on the basis of ratings determined on various academic factors like qualifications of the teaching faculty, staff-student ratio, books and journals, performance in university examinations, qualitative programmes and merits of the proposals. A selected college becomes eligible for grant by the UGC of Rupees three lakhs for the first phase of COHSSIP extending to three years. On satisfactory completion of activities in the first phase, the period of the programme could be extended for another two years. Further assistance upto Rupees two lakhs for the extended period of two years is provided under second phase of the programme.

The COHSSIP was introduced by the UGC in 1974-75 for improving the quality of teaching of humanities and social sciences at the undergraduate level through adoption of new teaching methods including use of audio-visual and other modern teaching aids, extension of library services, introduction of special courses, interdisciplinary programmes, measures for examination reforms, remedical teaching, and field/project work, etc. The programme, thus, provides an opportunity to the colleges to make innovative experiments for the improvement of teaching, learning, curriculum and examinations.

UGC Research Associateship for Women

The University Grants Commission (UGC) has selected 46 women scholars for the award of part-time Research Associateship for the year 1987-88. The award carries an emolument of Rs. 1,800/- and Rs. 2,200/- per month for scholars in 'A' and 'B' category respectively with a contingency amount of Rs. 5,000/- per annum. The duration of the associateship is initially for five years extendable by another three years upto the age of 60 years. The selected scholars are supposed to work for at least 20 hours a week.

The part-time Research Associateship awards have been instituted by the Commission to provide an opportunity to women research scholars preferably below the age of 55 years and who have shown extraordinary talent and competence to take up post-doctoral research work independently or on project assignment in Science, Humanities including Social Sciences, and Engineering and Technology in Indian universities.

Sports News

Awards for Excellence in Sports

The Jawaharlal Nehru University (JNU) has decided to give incentives and rewards to those students who distinguish themselves in sports. According to the scheme approved by the Executive Council of the University, JNU students who achieve positions in Inter-University/State/National competitions shall be eligible for cash awards of Rs. 1,000/- upto 3rd place at the National level, Rs. 500/- upto third place at State level and Rs. 400/- upto third place at Inter-University level. In addition to these awards, the University will also give certain incentives to students to encourage participation and promote excellence in sports.

Under this scheme if a student of the University gets selected to represent Delhi State in any game, which is recognised by the University, during the year in which he is a bonafide student of the University, she/he will be sanctioned a sports fellowship of Rs. 200/- per month for one full financial year. Similarly, a student representing the country will be given Rs. 400/- per month as sports fellowship on same conditions. The student representing the Delhi State will also be given a blazer with University emblem engraved on the pockets and the students representing the country will be given one University blazer and a good track-suit.

To encourage greater participation by the students and to promote more involvement and leadership qualities of the Convener, one special prize will be given each year to the most active Convener of the Sports Club during the year. Norms for this have also been laid down.

News from Abroad

Courses in Safety Technology

The Safety Technology Department of the Marshall University, Huntington (USA), recognizing the need for professional development and effective leadership in the Safety and Health fields offers a complete range of safety and health services designed to assist safety and health professionals in their efforts to remain on the reading edge of technology. The programmes have been designed to meet entry level requirements of people interested in entering the professional safety and health field, and the opportunity for present safety professionals to upgrade their skills and knowledge.

The programmes offered by the Safety Technology Department include: (i) Masters of Science Degree in Safety with optional emphasis in Mining Safety, Occupational Safety and Transportation Safety; (ii) Bachelors of Science Degree in Safety Technology/with option in Mining, Occupational and Transportation Safety (Fall 1989); (iii) Professional seminars and workshops in current safety and health issues; and (iv) Safety and Health consultations of industrial, governmental and educational organizations.

The Master of Science Degree has been designed to: (i) increase and update the skills and knowledge of working safety professionals; (ii) prepare safety professionals for assignments within industry, governmental agencies, or educational institutions; (iii) increase the abilities of management and supervisory personnel in the development of health and safety programmes within their operations; and (iv) re-educate members of the workforce for new challenges and opportunities for professional growth.

Further information regarding any of the Marshall University Safety programmes may be had from Safety Technology Department, Gullickson Hall Suite 3, Marshall University, Huntington, WV 25755.

We Congratulate...

Dr. H.K. Manmohan Singh, who has been appointed Vice-Chancellor of the Punjabi University, Patiala.

विद्यार्थियों / अध्यापकों के लिये शुभ संदेश

पठन-पाठन प्रक्रिया में सुविधा के लिये भारतीय विश्वविद्यालय संघ कई वर्षों से स्नातक व स्नातकोत्तर स्तर के विभिन्न विषयों पर अंग्रेजी भाषा में प्रश्न-बैंक प्रकाशित करता रहा है। इन प्रकाशनों में उपलब्ध सामग्री एवं सूचना शिक्षकों एवं विद्यार्थियों के लिये अत्यन्त उपयोगी सिद्ध हुई है।

हिन्दी भाषी प्रांतों के शिक्षकों एवं विद्यार्थियों की लम्बे समय से चली आती मांग को पूरा करने के लिये प्रश्न-बैंकों की इस श्रृंखला को हिन्दी भाषा में प्रकाशित करने का हमारा यह पहला प्रयास निश्चय ही लाभप्रद सिद्ध होगा। इसी आशा के साथ प्रस्तुत है :

जन्तु विज्ञान (Zoology)	**मूल्य रु० 100.00**
रसायन विज्ञान (Chemistry)	**,, रु० 160.00**
वनस्पति विज्ञान (Botany)	**(प्रकाशन में)**

अधिक जानकारी के लिये लिखें अथवा सम्पर्क करें —

अवर सचिव (प्रकाशन)
भारतीय विश्वविद्यालय संघ
ए.आई.यू. हाउस, १६ कोटला मार्ग
नई दिल्ली-११०००२

ENGLISH IN INDIA

Sir,

Dr. S.K. Verma, the Director of CIEFL, Hyderabad, in his article, 'English in India: Problems and Prospects', (*University News 27 February, 1989*) has invited the attention of all concerned to a very important and urgent issue. He has rightly pointed out that the 'language planners' at the Centre have not yet formed a national policy on the place of English in higher education in India. Even the academicians in this field have never been known for a collective action in this regard. They "agree to differ" on this issue. Two universities, even in the same state, totally differ on this matter. For example, the University of Bombay, at present, offers B.Sc. and B.Com. degrees without a single paper in English (compulsory or optional), while other universities in Maharashtra—Poona, Shivaji, Marathwada and Nagpur—have atleast two compulsory papers in English for both B.Sc. or B.Com. degrees.

Education has been a state subject and the universities are autonomous bodies. Hence this chaos. It has been obvious that this situation has yielded no good results.

There has been much discussion in the Department of Human Resource at the Centre about the 'New Education Policy', since 1986. One, therefore, feels it is high time to have at first a sort of national consensus on the place of English in higher education in India, especially at the undergraduate or tertiary level and then to have a national level policy in this respect.

One of the basic reasons of the frustration among the academicians is that they are allowed to discuss the issues but are not allowed to implement their ideas, because the financial matters and the final decisions are always with the government officials. Most of the reports of seminars and conferences are generally filed or paid little attention to.

What we need today is a meaningful cooperation between the academicians and the government officials and a joint or collective action by them. Some guidelines for such an action are provided by Dr. Verma in his article and the matter must be further considered seriously and urgently by the 'language plann ers' at the Centre. Till then, the teaching of English in our educational institutions will continue to be a ritual and the academicians will remain ineffectual angels.

Yours etc.
H.V. Deshpande,
Principal,
Ajara Mahavidyalaya,
Ajara, Dist. Kolhapur-416505

Sir,

Many state universities in Uttar Pradesh have switched over to three year degree course (TDC) after 10+2 from 1987-88. It means that the third year students of the TDC will be joining the colleges for the ensuing session 1989-90 from July 1989. In Meerut University uniform foundation courses have been introduced for students of the faculties of Arts, Science and Commerce in TDC Parts I and II. It is envisaged under the Meerut University syllabi that in the third year of the TDC a student must opt for a major vocational or technical course/subject in place of one major subject that he/she had offered in TDC first and second years. These courses include (i) Clay-Modelling, (ii) Textile Designing, (iii) Lettering and Layout, (iv) Insurance, (vi) Computer Science, (vi) Tourism (vii) Library Science, (viii) Journalism, (ix) Printing Technology, (x) Rural Development Cooperation and Extension, (xi) Social Forestry, etc. There are 26 such courses listed. However, a college will be permitted to start a maximum of six courses. The details of these courses are yet to be worked out.

The introduction of TDC with options for vocational courses involves proper planning with regard to manpower, infrastructure, books and journals, equipments for Labs and additional classrooms and other supporting systems and structures. Though proposals have already been submitted to the UGC, State Govt. and the University, the sanctions are still to be received. It is hoped that these will be forthcoming immediately to plan for July 1989.

Yours etc.
L.N. Mittal
Principal
Sanatan Dharm College
Post Box No. 212
Muzaffarnagar-251 001

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Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

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Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month', while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research Scholars and students of education are welcome to use these resources. The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

ADDITIONS TO AIU LIBRARY

Amrik Singh and Sharma, G.D. ed. *Higher education in India : The institutional context.* Delhi, Konark (c 1989) xii, 364p.

Arnold, Peter J. *Education, movement and the curriculum.* New York, Falmer Press, (c 1988) viii, 175p.

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————. *Recommendations of the National Seminar on role of Universities in Implementation of New Education Policy, Hyderabad, 1987.* New Delhi, Author, 1988, 20p.

Bagchi, Asoke K. *Encyclopaedia of Nobel Laureates 1901-1987.* Delhi, Konark (c 1988) xvi, 632p.

Cobban, Alan B. *Medieval English Universities : Oxford and Cambridge to c. 1500.* Aldershot, Scolar Press, 1988. xvii, 465p.

Dagar, B.S. *Culture, education and creativity : A study of anxiety and creative potential,* New Delhi, Uppal, 1989. xii, 175p.

Eggins, Heather, ed. *Restructuring higher education : Proceedings of the Annual Conference 1987.* Milton Keynes, S.R.H.E. and Open University Press, 1988. x, 189p.

Inamdar, N.B. and Ramaiah, L.S., ed. *National policy for university libraries in India : Problems and perspectives,* New Delhi, Concept, 1989. xxiii, 359p.

India. Ministry of Finance. *Economic survey 1988-89.* Delhi, Author, 198 9.

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Kist, Joost. *Electronic publishing : Looking for a blue print.* New Delhi, Institute of Book Publishing (c 1989) 223p.

Malan, Thierry. *Educational planning as a social process.* Paris, Unesco : IIEP (c 1987) 97p.

M.J. Akbar. *Nehru : The making of India.* London, VIKING (c 1988) xi, 609p.

Mohd. Muzammil. *Financing of education.* New Delhi, Ashish (c 1989) xv, 246p,

Puri, Narottam. *World cup cricket.* New Delhi, Konark, 1987. xii, 168p.

Rajasekharan, P.T. *P.T. Usha : The pride of India.* Delhi, Konark, 1987. x, 120p.

Ranjana Kumari and Radhakrishnan, S. *Higher education and scheduled tribe youth : A case study of Chattisgarh.* New Delhi, Radiant, 1989. viii, 101p.

Sanyal, Bikas C. *Higher education and employment : An international comparative analysis.* London, Falmer Press, 1987. 237p.

Simhadri, Yedla C., ed. *Youth in the contemporary world.* Delhi, Mittal, 1989. xv, 351p.

S. Lakshmi. *Innovations in education.* New Delhi, Sterling (c 1989) vi, 192p.

Tight, Malcolm, ed. *Academic freedom and responsibility.* Milton Keynes, S.R H.E. and Open University Press, 1988. 150p.

Verghese, Alexander V. *Higher education and management.* New Delhi, Ashish, 1989. xi, 212p.

Vladislavlev, Alexandra P. *Conceptual framework for the development of lifelong education in the USSR.* Paris, Unesco : IIEP, 1987. 111p.

Wadkar, A.J. *Home background in academic achievement.* Pune, Dastane Ramchandra, 1989.

Williams, J.P.R., ed. *Sports injuries handbook.* London, Willow Books, 1987. 160p.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

HUMANITIES

Philosophy

1. Das, Gopikrishna. *Geetabitan : Rabindranath and human society.* Visva Bharati. Prof. P. K. Sengupta, Department of Philosophy and Religion, Visva Bharati, Santiniketan.

2. Mohanta, Dilipkumar. *Scepticism in Indian philosophy.* Visva Bharati. Prof. Sushanta Sen, Department of Philosophy and Religion, Visva Bharati, Santiniketan.

3. Purushotham Paul, Kokkelagadda. *Philosophy of Dayananda Saraswati.* Andhra.

4. Ramakrishnan, M. *The new humanism of M.N. Roy : A critical study.* Calicut. Dr. V.C. Narayana Das, Prof. and Head, Department of Philosophy, University of Calicut, Calicut.

Fine Arts

1. Talukdar, Shahariar. *Folk art of Bangladesh.* Indira Kala. Late Dr. V.S. Wakankar.

Drawing & Painting

1. Tripathi, J.D. *Narsinghgarh kshetra kee shailashrayeen chitrakala.* Indira Kala. Late Dr. V.S. Wakankar.

Music

1. Ichalkaranjikar, Jyotsna. *Music and religion : A critique of kinship between Music and religion in context of their evolution in India.* Baroda.

2. Majumdar, Kalyan. *Post-Tagorean Bengali songs : Chronology, classification and evaluation.* Visva Bharti. Dr. Sitansu Ray, Sangit Bhavana, Visva Bharati, Santiniketan.

Performing Arts

1. Sanal, Ravi Varma. *The effective synthesis of lokadharmi and natyadharmi acting styles in Kutiyattam.* Calicut. Late Prof. G. Sankara Pillai.

Language & Literature

English

1, Abraham, Elizabeth. *Biblical archetypes in the novels of John Steinbeck.* Calicut. Dr. M. Elias, Prof., Department of English, University of Calicut, Calicut.

2. Bassam, Abdul-Razak Al-Hasso. *English for specific purposes techniques and problems with specific reference to the teaching of English to medical students of Salahuddeen University, Iraq.* JNU. Dr. R.S. Gupta, and Dr. H. C. Narang, Centre of Linguistics and English, Jawaharlal Nehru University, New Delhi.

3. Chrisologa. *Mysticism in the poetry of Gerard Manely Hopkins : A study of inscape and instress.* Calicut. Dr. Cleopatra, Prof. and Head, Department of English, Vimala College, Trichur.

4. Geetha, P. *Kamala Markandeya—the novelist : A study in cultural ambivalance.* Calicut. Dr. C. T. Thomas, Prof and Head, Department of English, University of Calicut, Calicut.

5. Lalwani, Saroj. *Shakespeare and Kalidas : A study of their women.* Barkatullah.¶ Prof. A.N. Gupta, E-3/106, Arera Colony, Bhopal.

6. Menon, Indira. *The Dance of Delusion : A study of the themes of deception and betrayal in the plays of Harold Pinter.* Delhi.

7. Saxena, Suresh Chandra. *Anita Desai : A critical study.* Bundelkhand. Dr. B. R. Sharma, Prof. (Retd), Department of English, Bundelkhand College, Jhansi.

8. Sharma, Seema. *The image of India in the novels of John Masters.* Vikram. Dr. D. S. Tatke, Prof. and Head, Department of English, Vikram University, Ujjain.

Sanskrit

1. Datta, Pradyot Kumar. *Panini and Pratisakya.* Calcutta.

2. Hari Narayana Bhat, B.R. *A critical edition and study of Pancika commentary on Anargharaghava of Murari.* Calicut. Dr. N.V.P. Unnithiri, Prof. and Head, Department of Sanskrit, University of Calicut, Calicut.

3. Jain, Sudha. *Jain Shravakachar ka adhyayan : Sagar dharmamrit ke vishesh sandarbh mein.* HS Gour. Dr. B C. Jain, Head, Department of Sanskrit, Govt. P.G. College, Damoh.

4. Kulkarni, Nirupama Bhalchandra. *Natya kathavastubhagiya bhasache rachanakaushal.* Nagpur. Dr. B.R. Ashtikar, Nagpur Mahavidyalaya, Nagpur.

5. Mukherjee, Bhaba Shankar. *A critical edition and study of the drama Jagannatha Vallabha of Ramananda Ray.* Visva Bharati. Dr. (Mrs.) Kalpika Mukherjee, Department of Sanskrit, Pali and Prakrit, Visva Bharati, Santiniketan.

6. Pandya, Ganapatishanker, Karunashanker. *Pt. Shrirang Avadhutanam Sanskrit sahityamanpradan.* Patel. Dr. (Mrs) C.P. Shukla, Prof. and Head, Department of Sanskrit, Sardar Patel University, Vallabh Vidyanagar.

Hindi

1. Aggargal, Nishi. *Naresh Mehta ke upanyason kee vyaktivadi bhoomi tatha samajik paridrishya.* Panjab.

2. Antony, P.M. *A comparative study of the social consciousness in the regional novels of Hindi and Malayalam.* Calicut. Dr. N. Ravindranath, Reader, Department of Hindi, University of Calicut, Calicut.

3. Behl, Ramesh. *Naresh Mehta ke katha sahitya ka sameekshatmak adhyayan.* Aligarh, Prof. V. N. Shukla, Department of Hindi, Aligarh Muslim University, Aligarh.

4. Bhatnagar, Mamata. *Adhunik upanyason mein jeevan mulyon ka vivechan.* Ravishankar. Dr. V.P. Pandey, Prof., Department of Hindi, Govt. Science College, Raipur.

5. Bidla, Jagdish Prakash. *Nai kavita mein vishleshan prayog.* Osmania.

6. Bisht, R.C.S. *Kumauni tatha Garhwali lok sahitya ka tulnatmak adhyayan.* Kumaun. Dr. Diwa Bhatt.

7. Bisht, S.S. *Sumitra Nandan Pant ke sahitya ka dhwanivadee adhyayan.* D. Litt. Kumaun.

8. Damle, Subhash. *Amritrai ke sahitya mein Marxvadi dristi.* Osmania.

9. Desai, Raghunath Ganapati. *Swatantrayottar Hindi anchalik upanyason mein pratibimbit samaj-jeevan, san 1950 isvi se san 1975 isvi tak.* Shivaji. Dr. S. G. Gokakekar, Department of Hindi, Shivaraj Mahavidyalaya, Gandhinglaj, District Kolhapur.

10. Dwivedi, Shyamakant. *Madhyayugeen Hindi nirgun bhakti sahitya kee darshnik vivechana : Rov Shakti darshan ke vishesh sandarbh mein.* Durgawati. Dr. M.S. Jain, Prof. and Head, Department of Hindi, Rani Durgawati Vishwavidyalaya, Jabalpur.

11. Gupta, Geeta. *Kavi aur nibandhkar ke roop mein Pt. Mukutdhar Pandey ka mulyankan.* Ravishankar. Dr. Vinay Kumar Pathak, Prof., Department of Hindi, Govt. P.G. College, Bilaspur.

12. Jha, Anjali. *Sathottari Hindi natakon mein samvad.* HS Gour. Prof. K. K. Jain, Head, Depatment of Hindi, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

13. Kanchan, Jawaharlal. *Dinkar krit geetnatya Urvashi: Kavya, sanskriti aur darshan.* Bundelkhand. Dr. S.N. Sharma, Ex-Prof., Department of Hindi, Bundelkhand College, Jhansi.

14. Katti, Shrikant Raghunath. *Madhyayugeen itihas per adharit Hindi natakon mein sanskritik chitran, isvi san. 700 se 1800 tak.* Shivaji. Dr. G.R. Kulkarni, Department of Hindi, Smt. M.G. Kanya Mahavidyalaya, Sangli.

15. Khare, Om Prakash. *Kali kavi aur unka kavya.* Bundelkhand. Dr. Ramswarup Khare, Lecturer, Department of Hindi, D.V. College, Urai.

16. Mishra, Damodar. *Adhunik Hindi aur Oriya kavya kee pragativadi pravrittiyon ka tulnatmak adhyayan.* Visva Bharati. Dr. B. N. Mishra, Department of Hindi, Visva Bharati, Santiniketan.

17. Pandey, Lila Dhar. *Girija Kumar Mathur : Jeevan darshan aur kavya chintan.* Kumaun. Dr. S.R. Sharma.

18. Patel, Vinodchandra Madhavbhai. *Vinod Rastogi ka natya sahitya.* Baroda.

19. Sharma, Praveen. *Bachchan aur unka kavya.* Delhi.

20. Sharma, Renu. *Nari-vyaktitva ka vikasparak sahitya : Ek adhyayan.* Panjab.

21. Shashi Bala. *Prasad ke natya sahitya mein purush patra vargikaran evam charitravishleshan.* Panjab.

22. Singh, Braj Mohan. *Acharya Shukla : Vichardhara aur sahitya ke mulya.* JNU. Prof. Namwar Singh, Centre for Indian Languages, Jawaharlal Nehru University, New Delhi.

23. Singh, Umesh Kumar. *Kabir ka kavya evam lok jeevan.* Awadhesh. Dr. P. D. Tewari, Asstt. Prof., Govt. College, Shahnagar, Panna.

24. Soni, Sudha. *Adhunik mahila kathakaron kee kahaniyon mein grihasth jeevan prasangon ka anusheelan.* Ravishankar. Dr. Ganesh Khare, Principal, Govt. K. D. Girls College, Rajnandgaon.

25. Warija, Vir. *Athven dashak ke natak.* Osmania.

Urdu

1. Abid Ali Syed Ali. *Urdu mein trajumi adab.* Nagpur. Dr. M. Sadullah, Jalgaon Jamod, District Buldana.

2. Fatima Begum. *Critical study of Ghawasi.* Osmania.

3. Jamal Mohammed, S. *Acquisition of Urdu by Hindi speakers : An error analysis of Hindi speakers learning Urdu as a second language.* Aligarh. Dr. K.A. Beg, Lecturer, Department of Linguistics, Aligarh Muslim University, Aligarh.

4. Md. Abdul Rahim. *Dabistan-e-Bijapur ka samaji aur sagafati pasmanzar.* Osmania.

5. Mohammed Niaz. *Krishna Chander ke afsanvi adab mein haqeeqat nigari.* Delhi.

6. Ruqeya, Farheen. *Dr. Syed Mohiuddin Quadri Zoor : Life personality and works.* Nagpur. Dr. M.P. Khan, Prof. (Retd), Mansha Nagpur Mahavidyalaya, Nagpur.

7. Tariq Saeed. *A critical study of Urdu prose styles in twentieth century.* Aligarh. Prof. Qazi A. Sattar, Department of Urdu, Aligarh Muslim University, Aligarh.

Bengali

1. Bala, Amritalal. *The influence of Hindu-Muslim cultures in the works of Alaol.* Calcutta.

2. Chakraborti, Sudipta. *Markandeya Puranantargata Saptisati Chandi O Bengla sahitya.* Calcutta.

3. Mukhopadhyay, Mano. *Unabisha satabdir Bangla sahitye darshanik chetana.* Calcutta.

Oriya

1. Sahoo, Mihir Kumar. *Folk-elements in Oriya fiction, 1888-1947.* Visva Bharati. Dr. S.S. Mahapatra, Department of Oriya, Visva Bharati, Santiniketan.

Marathi

1. Shinde, Vishwanath Kashinath. *Paramparik Marathi tamasha ani adhunik vaganatya.* Shivaji. Dr. G.M. Pawar, Prof. and Head, Department of Marathi, Shivaji University, Kolhapur.

Manipuri

1. Lalnghawrlien. *A descriptive grammer of Hmar language.* Manipur. Dr. P.C. Thoudam, Assoc. Prof. Department of Linguistics, Manipur University, Imphal.

Arabic

1. Hafiz Mohammed Abdul Haleem. *A critical edition of the manuscipt, "Tafseer-o-Gharaibul Quraan" bv Omer Bin Ishaaqh Al-Ghaznawi.* Osmania.

Tamil

1. Nathaniel, M. Albens. *A critical study of Bharani literature with special reference to Dakshayaga Bharani of Ottakkuthar.* Calicut. Dr. C. Govindan, Department of Tamil, Govt. College, Chittur.

Malayalam

1. Kurian, K.T. *A study of lexical expansion in Malayalam since Gundert.* Calicut. Dr. E. Annamalai, Centre for International and Indian Languages, Mysore.

2. Omanakutty Amma, K. *Relation between the musical and literary aspects of Kathakali : A critical study.* Kerala. Dr. V.S. Sharma, Prof. Department of Malayalam, University of Kerala, Kariavattom.

Telugu

1. Andamma, M. *Shakti cult in folk literature.* Osmania.

2. Raja Gopalacharyulu, Tirumala Venkata. *Tallapaka Chinnanna sahitpa sameeksha.* Andhra.

3. Sarma, Prabhala Subrahmanya. *Tirupati Venkatakavula-Prabandhamulu paryalokanamu.* Andhra.

Geography

1. Ansari, Anwar Ali. *The Kosi : A study in River Regime.* Delhi.

2. Hige, Pragati. *Urban morphology of Ujjain : A study in changing land use.* Vikram. Dr. B.M. Singhal, Prof. and Head, Department of Geography, Madhav College, Ujjain.

3. Shukla, Pardeshiya. *Micro level planning, a geographical perspective : A case study of Baberu Tehsil in Banda District.* Bundelkhand. Shri R.A. Chaurasia, Prof. Department of Geography, Attara College, Attara.

History

1. Awasthi, Mahendra Mohan. *Lalitpur Jile ka samajik arthik itihas, 1866-1947.* Bundelkhand. Dr. S.P. Pathak, Lecturer, Department of History, Bundelkhand College, Jhansi.

2. Bandyopadhyay, Alok Kr. *Agrarian economy in Northern India, 4th century B.C. to 4th century A.D.* Burdwan. Prof. Bhaskar Chhatterjee, Department of History, University of Burdwan, Burdwan.

3. Chauhan, Ajaipal Singh. *Angreji shasan kal mein Bundelkhand mein Isai mat ka itihas.* Bundelkhand. Dr. S.P. Pathak, Prof. Department of History, Bundelkhand College, Jhansi.

4. Ghoshal, Jhara. *Dahala : A socio economic study from the 9th to 11th century A.D* Calcutta.

5. Hans, Rajkumar. *The agrarian economy of Broach District, Gujarat during the first half of the nineteenth century.* Baroda.

6. Krishan, Kalpana. *The sculpture of Bharhut and Sanchi : An archaeological study.* Delhi.

7. Mohapatra, Jyotirmayee. *Anantavarman Chodagangadeva and his times.* Sambalpur. Dr. P.K. Mishra, Prof. Department of History, Sambalpur University, Burla.

8. Shyam Lal. *Kumaun Chandvansh ka rajnaitik itihas, 1300 se 1790 isvi tak.* Kumaun. Dr. A.S. Rawat.

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Master's degree in Computer Science/ M.C.A./M. Tech. (Computer/Electronics) and 15 years experience in EDP.

OR

M.Sc. in Stat./Agril. Statistics with P.G. Diploma in Computer applications (DCA) with 15 years experience, out of which 5 years experience in EDP management.

Sr. No. 2 : Ph.D. in Agril Statistics/ Statistics/Mathamatics/Computer Science and 5 years experience in system develoment and EDP management.

OR

Master's degree in Computer Science/ M.C.A./M. Tech. (Computer Electronic) and 7 years experience; out of which 2 years experience in system development and EDP management.

OR

M.Sc. in Statistics/Agril. Statistics with P.G. Diploma in Computer Application (DCA) with 10 years experience out of which 3 years experience in EDP management.

Sr. No. 3 : Master's degree in Computer Science/M C.A./M. Tech. (Computer/Electronic) with 2 years experience in Computer Programming.

OR

Master degree in Agril. Statistics/ Statistics/Mathematics with P.G. Diploma in Computer Application and 3 years experience in computer programming.

OR

B.Sc. in Statistics/Mathematics with First Class and P.G. Diploma in Computer Application and 5 years experience of computer programming.

Sr. No. 4 : Master degree in Computer Science or M.C.A.

OR

B. Sc. in Computer Science with 3 years experience.

OR

B. Sc. in Statistics/Mathematics and P.G. Diploma in Computer application and 3 years experience of Computer programming.

Sr. No. 5 : B.Sc. in Statistics/Mathematics with P.G. Diploma in Computer Application.

OR

B.Sc. in Computer Science.

Sr. No. 6 : Any Science graduate with higher second class preferably B.Sc. in Statistics/Mathematics/Agriculture and certificate course in Computer programming from recognised Institute.

Sr. No. 7. : Any graduate with second class and certificate course in computer programming from recognised institute and two years experience.

The present sanctioned posts of Computer Centres and other schemes equivalent to the posts mentioned above will also be considered under these rules for recruitment and pay-scale. The present post of programmer in the pay scale of Rs. 1400-2300 in Statistical Cell (B.H. 3226) will be upgraded as per Sr. No. 4.

Note : For Sr. No. 6 science degree can be relaxed for University graduate employee having five years experience.

Age :—1. For the posts shown against Sr. No. 1 to 3 below 55 years.
2. For the posts shown against Sr. No. 4 below 30 years.
3. For the posts shown against Sr. No. 5 to 7 below 28 years.

Instructions :

1. Application forms and other terms and conditions can be had from the Registrar, Gujarat Agricultural University, Sardar Krushinagar-385506, Dist : Banaskantha, on cash payment of Rs. 2/- (Money order will not be accepted) or by sending crossed Indian Postal Order of equal Value issued in favour of **"Gujarat Agricultural University, Fund Account"** alongwith the self addressed envelope (23 cm × 11 cm) affixed with Rs. 1.20 paise postage stamps.

2. The application duly completed in all respects with application fees of Rs. 50/- for the posts shown at Sr. No. 1 to 3 and Rs. 20/- for the posts shown at Sr. No. 4 to 7 in the form of I.P.O. drawn in favour of "Gujarat Agricultural University, Fund Account" to the Registrar, at above address on or before 1-5-1989. Invariably through proper channel.

3. The candidates already in the service of this University have to apply through their respective office in the prescribed form with ten copies of the authenticated biodata without IPO.

4. All the candidates should send their applications through proper channel.

5. All the candidates called for interview will have to attend the interview at their own cost.

6. Incomplete application will not be considered.

7. The University reserve their full rights to fill up or not to fill up any or all the posts and to give or not to give appointment to the candidates selected by the Selection Committee.

8. Canvassing in any form will completely disqualify a candidate.

9. Selected candidates for the above posts or category shall be posted at any campus or centre of the University and between education, research and extension activities projects. Outside candidate will have to resign from the previous employment. There will be two years of probation for all the selected candidates and will be appointed under written contract.

R.J. Patel
REGISTRAR

MANIPUR UNIVERSITY

CANCHIPUR : IMPHAL

Advertisement No. 2/89 **Dated : 18th March, 1989**

Applications are invited for the following posts :

Post	Department	No. of posts	Specialisation
Professor	Commerce	1	Organisation Theory/and Behaviour
	Anthropology	1	Social Anthropology/Physical Anthropology
	Computer Science	1	Open
	Life Sciences	1 (temporary, likely to be permanent)	Open
Associate Professor	Life Sciences	2	(a) Open (b) Ecology (leave vacancy)
	Economics	1	Agricultural Economics/Industrial Economics
	Commerce	1	Marketing Management/Production Management
	Computer Science	1	Open
Assistant Professor	Earth Sciences	2	(a) Petrology/Structural Geology/Palaeontology (b) Resource Geography with Remote Sensing Settlement Geography with Spatial and Network analysis
	Life Sciences	1 (against leave vacancy)	Bio-Statistics
	Commerce	1	Business Policy and Banking
	Linguistics	1	Tibeto-Burman Linguistics/Lexicography
	Computer Science	1	Open
Reseatch Associates	Statistics	3	Open
Systems Engineer	Computer Centre	1	Open

Scales of Pay

Professor	: Rs. 4500-150-5700-200-7300/-
Associate Professor	: Rs. 3700-125- 4700-150-5700/-
Assistant Professor	: Rs. 2200-75-2800-100-4000/-
Research Associates	: Rs. 1800/- p.m. consolidated
Systems Engineer	: Rs. 3000-100-3500-125-5000/-

Candidates invited for interview will be given Ist Class (for Professors) and 2nd Class (for other posts) railway fare as T.A. from the place of origin and back or the actual expenses on fare, whichever is less.

Essential Qualifications

1. **Professor :** An eminent scholar with published work of high quality actively engaged in research in the relevant field. About 10 years experience of teaching and/or research. Experience of guiding research at doctorate level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge in the relevent field.

2. **Associate Professor :** (a) Good academic record with a doctorate degree or equivalent published work in the relevant field. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

(b) About 5 years experience of teaching and/or resesarch provided that at least three of these years were as Assistant Professor/Lecturer or in an equivalent position.

This condition may be relaxed in the case of candidates with outstanding record of teaching/research.

3. **Assistant Professor :** (a) Master's degree in the relevant subject with at east 55% marks or its equivalent grade ind good academic record.

(b) M.Phil and Ph D. are desirable ualifications. The minimum qualificaions prescribed in (a) above shall not, owever, be relaxed even in respect of andidates who have research degrees ke M.Phil/Ph D.

Professor in Computer Science

(i) **Essential :** An eminent scholar ith published work of high quality and actively engaged in research. About 10 years experience of teaching and research. Experience of guiding research at doctoral level in Computer Science or in an allied field.

(ii) **Desirable :** Operating Systems/Information System/Computer Architecture.

5. Associate Professor in Computer Science

(i) **Essential :** Good academic record with a doctorate degree or equivalent published work in Computer Science.

(ii) **Desirable :** About 5 years' experience of teaching and research or work experience in computer applications provided that at least 3 years were as a Lecturer or in an equivalent position associated with Computer System.

OR

(a) (i) Master's degree in CS/CA or (ii) Master's degree in any discipline or BE/B Tech in CS/Electronics with DCA.

(b) Minimum of 5 years' experience in Computer System development and in conducting training programmes in Computer Science.

6. Assistant Professor in Computer Science

(a) Master's degree in Computer Science/Computer Application/Business Administration or Master's Degree in any discipline or BE/B.Tech in Computer Science/Electronics with DCA; and

(b) A minimum of two years' experience in Computer systems development.

7. Research Associate

Research Associateships are intended for persons preferably below the age of 45 years who have doctorate degree and have published research work to their credit and have already shown evidence of independeent research work in the relevant field. In the case of women candidates, the age limit is 55 years.

8. Systems Engineer

M.Tech in Computer Science/Technology or M.Sc. in Physics/Mathematics/Statistics, BE/B. Tech with Post-Graduate Diploma in Computer Science/Application and at least 2 years' working experience in Computer System and requisite training in hardware and software of Computer Systems.

Candidates who applied earlier in response to Advertisement No. 9/88 dated 21.11.1988 for the post of Systems Engineer need not apply again.

How to Apply : Applications, on plain paper (in duplicate) with attested copies of certificates in support of quaiifications and experience showing candidate's name, father's name, date of birth, address for correspondence, academic & professional attainment, teaching/working & research experience, field of specialization, publications (to be enclosed with reprints), seminars/conferences attended, details of visit to foreign countries and assessment reports from at least two persons well acquainted with the candidate's professional work should reach the Registrar, Manipur University, Imphal-795003 on or before **19-4-89.**

Applications received late or incomplete in any respect may not be entertained. Persons already in service must apply through their employers so as to reach this office on or before the last date fixed. No candidate will be considered for appointment unless he/she produces a 'No Objection Certificate' from his/her employer at the time of interview.

Retired persons who have not attained the age of 62 years may also apply for appointment on contract basis. It will be open to the University to consider the names of suitable candidates who may not have applied. Deserving candidates who do not fulfil all the qualifications for faculty positions mentioned above may be considered in the lower scale of pay equivalent to that of Associate Professor or Assistant Professor, as the case may be.

Th. Joychandra Singh
REGISTRAR

NATIONAL GEOPHYSICAL RESEARCH INSTITUTE

(Council of Scientific & Industrial Research)

HYDERABAD-500 007

Advertisement No. 1/89

Applications for appointment in the following Posts in the Institute are invited :

Abbreviations :

M.Q. : Minimum Qualifications
F.E. : Field of Experience
J.R. : Job Requirements

or the place of address for correspondence in the application whichever is nearer to Secunderabad Railway Station, on production of relevant documents of travel.

18. Canvassing in any form and/or bringing of any influence, political or otherwise, will be treated as a disqualification for the post.

19. Interim enquiries will not be entertained.

K.R. Sarma
CONTROLLER OF ADMINISTRATION

INDIAN COUNCIL OF MEDICAL RESEARCH

The Council proposes to appoint a **Senior Research Officer (Medical)** for the Hqs. Office of the Council, New Delhi.

Job Description : The incumbent will assist (i) In monitoring ongoing experimental and clinical studies on selected traditional remedies/medicinal plants in different parts of India. (ii) The managerial and technical aspects of research stategies of ICMR in the field of traditional medicine research.

Qualification and Experience : Essential : (i) MBBS from a recognised University with at least 8 years Research Experience on Clinical and Experimental evaluation of medicinal plants/traditional remedies in a reputed teaching/Research Organisation. (ii) In case of candidates possessing Doctorate or equivalent post-graduate degree in a bio-medical subject (Medicine, Paediatrics, Pharmacology, Pathology and related discipline) and five years research experience preferably with reference to clinical and experimental evaluation of Medicinal Plants/Traditional remedies.

Applications from those who do not possess a basic qualification in modern medicine (i e. MBBS) will not be considered.

Desirable : A doctorate or equivalent post-graduate medical qualification.

Salary/Condition of Service : The scale of pay attached to the post is Rs. 3000-100-3500-125-4500 plus usual allowances as per Central Govt. Rules. Non-practicing allowance is admissible to Medical Graduate only, as per rules of the Council. Private practice is not allowed. Benefits of pension admissible.

Age : Below 45 years. SC/ST candidates allowed relaxation in accordance with Govt. of India Rules.

Candidates who had applied for the same post in response to the earlier advertisement (in 1988) need not apply again.

Candidates called for interview will be paid 2nd class return train fare on production of his/her travel vouchers/receipts.

Applications from employees working in Govt. Departments, Public Sector Organisations and Govt. funded research agencies should be forwarded through proper channel.

Application can be obtained from the Office of the Director-General, Indian Council of Medical Research, Post Box 4508, Ansari Nagar, New Delhi-110 029. Forms duly completed should be sent to the Director-General, Indian Council of Medical Research, Post Box 4508, Ansari Nagar, New Delhi-110029 with a crossed Indian Postal Order for Rs. 8/- payable to Director-General, ICMR, New Delhi, SC/ST candidates are exempted from this payment. Incomplete and late application will not be entertained. Forms duly completed should reach the ICMR Office **on or before 27th April, 1989.**

All India Institute of Medical Sciences

ANSARI NAGAR, NEW DELHI-110 029

ADMISSION NOTICE

B Sc (HONS) HUMAN BIOLOGY COURSE —AUGUST 1989

Applications are invited on prescribed form for admission to B.Sc. (Hons.) Human Biology course starting from 1st August, 1989. To be eligible for admission, a candidate must have passed 12th class examination under 10+2 system or an equivalent examination with required subjects, i.e. Physics, Chemistry, Biology and English securing a minimum of 60% marks (50% in case of Scheduled Caste/Scheduled Tribe candidates) in aggregate in these subjects. Those candidates who will be appearing in the 12th class examination under 10+2 system or equivalent examination in March/April, 1989 and whose results are likely to be declared before 1st July, 1989, are eligible to apply. A candidate should have attained or will attain the age of 17 (Seventeen) years as on 31st December, 1989.

The cost of each set of application with prospectus is Rs. 10/-. The amount is payable only by crossed Indian Postal Order in favour of the **Director, AIIMS**, payable at Delhi or by a Bank Demand Draft payable to the **Director. AIIMS**, drawn on the State Bank of India, Ansari Nagar Branch, New Delhi. The Indian Postal Orders/Bank Demand Drafts should be valid for six months. The request for the prospectus containing the application form must reach the Office of the Registrar, AIIMS, Ansari Nagar, New Delhi-29 **before 22nd April, 1989.** A 10" x 6" self-addressed envelope with postage stamps of Rs. 3.50 affixed thereon, should be enclosed for each set of application form and prospectus. **Money Orders, Cheques, Cash or any other form of payment will not be accepted.**

The prospectus containing application form can also be obtained personally from the Office of the Registrar on any working day from 11 A.M. to 1.00 P.M. and 2.30 P.M. to 4.30 P.M. till **28th April, 1989.**

Last Date for Receipt of Applications, complete in all respects is 30th April, 1989. Applications Received Late will not be Considered.

INDIAN SCHOOL OF MINES

DHANBAD-826004

No : 614001/89

Dated : 13.3.1989

ADMISSION NOTICE—M.TECH/DISM PROGRAMMES

Applications are invited for admission to the following Post Graduate programmes commencing on June 19, 1989 at ISM, a deemed University under the UGC Act.

A. M.TECH/DISM IN ENGINEERING DISCIPLINES

M.Tech programmes in engineering subjects at ISM, in common with other Universities, are of 3-semester duration. A unique feature at ISM, however, is the award of a postgraduate DIPLOMA OF INDIAN SCHOOL OF MINES (DISM) on completion of the first two semesters. The third semester (for project work) leading to award of M.Tech can be pursued either in the institution or on job at respective places of work of the candidates.

	Discipline		Eligibility Qualification : B.Tech or equivalent degree in
(1)	Drilling Engineering. (6 seats)	—	Mech/Prod/Min Engg or Mining Machinery.
(2)	Fuel Engineering. (6 seats)	—	Fuel/Chem/Met/Mech/Min Engg.
(3)	Maintenance Engg & Tribology (6 seats)	—	Mech/Prod/Min Engg or Mining Machinery.
(4)	Mineral Engineering. (15 seats)	—	Mech/Chem/Met/Min. Engg. OR M.Sc. in Mineral processing or equivalent; M.Sc. Applied Geology or equivalent with mathematics at B.Sc. level.
(5)	Mining Engineering (6 seats) with specialisation in (1) Mine Planning & Design. (2) Rock Mechanics. (3) Mine Environment.	—	Mining Engg.
(6) (*)	Opencast Mining (10 seats)	—	(A) Min Engg. Open Cast Mining or Mining Machinery. OR (B) Civil/Elec/Mech Engg, with at least one year approved experience in opencast mines.

(*) For OCM programme, there will be an additional bridge semester for candidates with qualifications in CIVIL/Elec/Mech Engg. Graduates of Mining Engineering, Opencast Mining and Mining Machinery may have to undergo some training in Open Cast mines during this period, if required. One year's experience in open cast mines will be necessary for all applicants other than those with Min Engg. Open Cast Mining & Min Mech background.

(7) (**)	Longwall Mine Mechanisation (15 seats).	—	Mech/Elec/Min Mach/Mining.

(**) Fresh graduates will have to undergo a pre-semester make-up course before being admitted to regular 3 semester M.Tech course.

(8)	Industrial Engg and Management (15 seats)	—	Any branch of Engineering with at least six months experience in industry/reputed organisation.
(9) (***)	Petroleum Engg	—	Chemical Engg/Mechanical Engg/Petroleum Engg.

(***) The candidates with B.Tech degree in Chemical Engg and Mechanical Engg shall have to undergo a Make-up semester course before being admitted to regular 3-semester M.Tech course.

(B). M.TECH IN EARTH SCIENCE DISCIPLINES

M.Tech programmes in Earth Science disciplines at ISM are of 2-semester duration. There are six seats in each programme.

	Discipline		**Eligibility Qualification**
(1)	Geophysical Instrumentation & Techniques.	—	M.Sc.Tech or equivalent in Applied Geophysics.
(2)	Mining Geophysics.	—	M.Sc.Tech or equivalent in Applied Geophysics.
(3)	Mineral Exploration	—	(a) M.Sc.Tech or equivalent degree in Applied Geology. OR (b) M.Sc. degree in Geology with two years field experience.
(4)	Engineering Geology	—	(a) and (b) as above OR B.Tech or equivalent degree in Civil Engineering.
(5)	Petroleum Exploration	—	M.Sc.Tech or equivalent degree in App. Geology/App. Geophysics.

NOTE : Candidates applying for programme B (3) or (4) should also have passed in Physics or Mathematics at the graduate level.

2. Admission to M.Tech Programmes

Admissions to above programmes (A & B) shall be made from amongst those candidates who have passed GATE/NET examination with valid scores. Candidates sponsored by the employers may also be admitted but they will not be entitled to any scholarships and other grants.

3. General Information

3.1 15% seats are reserved for Scheduled Caste and 7-1/2% for Scheduled Tribe candidates.

3.2 Other things being equal, preference shall be given to sponsored candidates, sponsorship in this context meaning retention of lien on post and grant of suitable allowance by the concerned organisation. Applications of these candidates should carry endorsement to this effect from the employer.

3.3 Candidates called for appearing in the Viva-Voce (likely to be conducted in the 1st week of June 1989 at ISM, Dhanbad) will have to do so at their own cost, TA/DA is not admissible.

3.4 **Scholarship :** Non-sponsored candidates admitted to the above programme will be eligible for a scholarship as decided by the Govt. of India/UGC for a period not exceeding the duration of the programme.

3.5 Courses where the number of students admitted falls down below four may not be run.

4. **How to Apply :** Applications on prescribed forms should reach the undersigned, by 30th April, 1989 at the latest. The forms are obtainable by sending a crossed postal order for a sum of Rs. Ten only (made payable to the Registrar, Indian School of Mines, Dhanbad-826004 at ISM Post Office, Dhanbad) along with a self-addressed unstamped envelope of size 23 × 10 cm. The envelopes containing request for form must be superscribed "Request for Admission Form".

B.N. Sinha
Dy. REGISTRAR (Academic)

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University News

MONDAY, APRIL 10, 1989 Rs. 2.50

X ANNUAL CONVOCATIO
ANNA UNIVERSITY
1989

From L to R : Dr. V.C. Kulandaiswamy, Vice-Chancellor, Dr. D. Stephen Sandegren, Registrar, Dr. P.C. Alexander, Chancellor and Governor of Tamil Nadu and Prof. C.N.R. Rao, Director, Indian Institute of Science, Bangalore, who delivered the convocation address.

SCHOOL OF CORRESPONDENCE COURSES

ANDHRA UNIVERSITY-VISAKHAPATNAM-530 003.

ADMISSION INTO B.A. AND B. COM. COURSES SUPPLEMENTARY BATCH, 1988-89

The School of Correspondence Courses is inviting applications from the candidates residing in India for admission into B.A. and B.Com. Degree courses for the academic year 1988-89 as Supplementary Batch.

The 1st Year University Examination for these candidates will be held in September/October, 1989 and 2nd and 3rd Year Examinations will be held with a gap of one year each, thereafter.

COURSE	ELIGIBILITY
1. B.A. (both English and Telugu media) with the combinations of Special Telugu, Special English, History, Economics, Politics, Public Administration, Sociology and Mathematics : 3 years duration.	Intermediate/P.U.C. or equivalent or pass in Entrance Examination conducted by this School.
2. B. Com. (Both English and Telugu media) : 3 years duration.	Intermediate/P.U.C. or equivalent or pass in Entrance Examination conducted by this School.

Applications will be issued from 3rd April, 1989. Filled-in applications should reach the undersigned on or before **3rd May, 1989.**

Intending candidates may write to the undersigned **by Designation** for admission applications and prospectus by sending Rs. 10/- by Demand Draft/Money Order. The candidates may also remit cash at the Cash Counter in the School of Correspondence Courses towards admission application form and prospectus. Postal Orders and Cheques will not be accepted.

The prescribed application forms and prospectus are also available at our following study centres on payment of Rs. 10/- through Demand Draft drawn in favour of the Director, School of Correspondence Courses, Andhra University, Waltair : 1. Government College, Srikakulam; 2. M.R. College, Vizianagaram; 3. Mrs. A.V.N. College, Visakhapatnam; 4. Government College, Rajahmundry; 5. P.R. Government College, Kakinada; 6. Sir C.R. Reddy College, Eluru; 7. S.R.R. & C.V.R. Government College, Vijayawada ; and 8. A.C. College, Guntur.

The School has no agents and takes no responsibility for the prospectus issued and the promises made for admission by any other institution.

N.B. : The applicants should clearly mention in their requisition that they require "Admission Application Form for Supplementary Batch 1988-89".

Special Note for the Successful candidates in B.A./B. Com. Entrance Examination of January, 1989.

All the successful candidates in the B.A./B.Com. Entrance Examinations held in January, 1989 need not apply for admission application form and prospectus for admission into 1st year degree course. The School will arrange to send the admission application form and prospectus along with the Marks Statement-cum-Eligibility Certificate to such candidates. They have to pay an amount of Rs. 10/- towards the cost of admission application form and prospectus along with the prescribed tuition fee at the time of admission. However, the duly filled-in admission application form along with necessary enclosures including the Demand Draft/Money Order Receipt towards prescribed fee should reach the School of Correspondence Courses on or before the prescribed date.

Waltair
Dated : 27.3.1989

Prof. V. Abraham
DIRECTOR

24 APR 1989

UNIVERSITY
NEWS

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pinions expressed in the articles e those of the contributors and o not necessarily reflect the olicies of the Association.

itor :
UTINDER SINGH

The Governor as Chancellor

M. C. Jain Kagzi*

Except for central Universities, the Governor of the State is the ex-officio Chancellor of a State University. In respect of the AMU, BHU, Delhi University, Jawaharlal Nehru University, IGNOU, University of Hyderabad, North Eastern Hill University, Pondicherry University and the Visva Bharati the Governors of the respective States are not the Chancellors. In case of the Delhi University, the Vice-President of India is the ex-officio Chancellor. The Prime Minister is ex-officio the Chancellor of the Visva Bharati. The Chancellor of AMU and BHU are variously appointed by the respective academic communities.

The Governor of Rajasthan is ex-officio the Chancellor of University of Rajasthan. The Rajasthan University Act 1946 provides that the State Governor "shall be the Chancellor by virtue of his office." He is the Head of the State; and is at the same time the senior-most officer of the University.[1] The same is true in respect of the other State Universities of the State, as similar provisions are made under the appropriate laws with respect to the Jodhpur University, Sukhadia University at Udaipur, Kota University, Ajmer University and Agricultural University at Bikaner.[2] The State Governor is ex-officio Chancellor, but reverse is not true. As the head of the University he is the Kuladhipati. The Chancellor derives his powers from the appropriate University Act, not from any of the University Statutes, qua the Chancellor does not derive his powers from his prerogatives or powers pertaining to his gubernatorial office. Unlike the State Governor, he (as Chancellor) neither derives, nor exercises any executive power on the strength of the provisions of the Constitution. Unlike the Governor again, he (as Chancellor) does not act constitutionally on the advice of the State Chief Minister and the Council of Ministers[3]. Like the Governor, however, the Chancellor's position is of an executive head, not a mere titular head, of the University : he is given statutory power to superintend and control to ensure smooth functioning of the University. He can give notice, and thereby, express his "intention" to inspect, or may get the University or its institutions : Departments, Colleges, Works, examinations, etc. inspected through a person(s) appointed by him. The 'inspection' is of 'any matter connected with the University and of the general affairs of the University'. *Generalia specialibus non derogant* this statutory power does not derogate any special provisions of law e.g. provisions of the University Teachers and Officers (Selections for Appointment) Act, 1974. Contextually 'inspection' is not 'inquiry'. Any 'inspection' is to be a general examination into affairs of a body/service; and an 'inquiry' is investigatory examination or an inquest into affairs, proceedings of any body, or conduct of any officers subordinate to the head or authority. The inspection power is in the nature of an administrative prerogative; and an inspection ordered by the Chancellor cannot be converted into any quasi judicial inquiry into any of the affairs of the University. When the Chancellor orders an inquiry into any definite matter, the University 'shall be entitled' to be represented.

The functions of the University Chancellor are as set forth in the appropriate University Act; and are not prescribed in the University

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**Emeritus U.G.C. Fellow, Faculty of Law, University of Rajasthan, Jaipur.*

Statues and the ordinances. The Chancellor has statutory powers; and his acts are statutory acts only. For such acts he has no personal immunity as is conferred on a Governor under Article 361(1)(4) of the Constitution of India in respect of exercise of powers vested in him in relation to his gubernatorial office of head of the State under article 154 of the Constitution.[4] The Chancellor 'shall' be the Chairman of the University Senate; and, when present presides over the Senate meeting and the University Convocation. He can communicate his views in respect of the affairs of the University to the authorities of the University and the Vice-Chancellor; and ask for such information as he deems necessary. In particular his powers as the head of the University include :

(i) Confirmation of the formulation/repeal/alteration of the University Statues;
(ii) Ordering of inspection by persons appointed by him, of the University, its buildings, institutions, equipment, teaching patterns or standards of examinations conducted by the University;
(iii) Appointment of the University Vice-Chancellor; and
(iv) Nomination of an educationist to the 3-members selection committee, and appointment of the chairman of the committee required for selection of a person for appointment as Vice-Chancellor.
(v) The Chancellor also nominates :
    (i) Four (not exceeding four) persons who have rendered distinguished service to education to membership of the University Senate—Section 18 (XXVI).
    (ii) One educationist to syndicate—section 21 (1)(v).
    (iii) One educationist to 3-member committee —section 12(1)(iii).
    (iv) An eminent educationist to a selection committee—section 5(1)(iii) of the Rajasthan University Teachers and Officers (Selection for Appointment) Act, 1974.

The Chancellor appoints the University Vice-Chancellor and Pro-Vice-Chancellor. In fact he is enabled to ensure smooth functioning of the University by being the appointing authority of Vice-Chancellor, who is the whole time principal academic and executive officer of the University. The Vice-Chancellor is duty bound to provide the Chancellor all information he may call for. The Chancellor can suspend the Vice-Chancellor[5]. The Vice-Chancello may submit his resignation to the Chancellor, th latter may in turn convey to the former the date fron which it 'shall' take effect. The Chancellor may fi the vacancy in the office of the Vice-Chancellor whic might occur by reason of death, resignation, leave o any other cause. In the event of temporary vacanc he may make such arrangements as he may deem f for carrying on the functions of the Vice-Chancellor he may appoint a committee for carrying on th functions until the day on which the Vice-Chancell resumes his duties. An acting Vice-Chancellor acts a the Vice-Chancellor until the date on which a ne Vice-Chancellor is appointed in accordance with th provisions of section 12(1) of the UOR Act. A Professors' Committee or a caretaker Vice-Chancello may discharge the duties of Vice-Chancellor durin the period he is unable to discharge his duties due t absence, illness or other temporary contingency.

The Chancellor should appoint Vice-Chancellor i accordance with the provisions of the UOR Act. Th former's statutory power of appointment is regulate by the procedure set-forth in section 12(1) of th UOR Act. Except in respect of any temporary, o casual vacancy caused by absence, illness, death o resignation his discretion in the matter is statutoril limited and procedurally regulated. The words 'leave illness, otherwise' used in sec. 12(6)(i) of the UOR Act include a case of resignation. Therefore, vacanc caused by resignation is not similar to a regula vacancy likely to be caused by expiry of the 3-year term of office. In the event of resignation of Vice-Chancellor, the Chancellor may appoint an Acting Vice-Chancellor. However, when a vacancy is caused by reason of expiry of the regular term of office of a Vice-Chancellor, his discretion in the matter is limited and regulated. His choice of the person to be appointed is restricted to the persons whose names are recommended by a 3-members committee. The committee should consist of :

(i) a person nominated by the University Syndicate;
(ii) a person nominated by the University Grants Commission; and
(iii) an educationist nominated by the Chancellor.

These members are required to be persons 'no connected' with the University or any affiliated college approved institution of the University[6]. The chairman of the committee is named by the Chancellor from amongst these persons. The adjectival expression 'not connected with the University' requires that th members of the panel should not suffer disqualification due to any connection with the University at the tim of their nomination as also during the course of its existence. A member of a Board of Studies is a person connected with the University; and, therefore, he cannot be a member of the panel. This panel is neither a body of the University, nor is it a part of the structure of the University. It is not connected with the administration of the University.

The 3-member panel may recommend a panel of three suitable persons. The UOR Act does not prescribe any number of panel names; but the practice requires that the panel should include not more than three names. The UOR Act limits the Chancellor's choice of new Vice-Chancellor to the mandatory requirement of selection of a person from the panel prepared by the 3-member committee. The panel may, however, consist of two, or even one name. In a similar situation relating to the panel recommended by a 3-member committee appointed under the Bhopal University Act, it was held that the panel could include three names; and if the committee thought fit, it might even suggest two or even one name; however, the practice followed is that of a panel being of 'not less than three'[8].

The vacancy of the office of Vice-Chancellor caused by expiry of 3-year term is the regular vacancy. The statutory injunction is that, "The Vice-Chancellor shall...be appointed upon the recommendation of the 3-member committee". In this statutory injunction the Chancellor's choice of the person to be appointed as Vice-Chancellor is exercisable only under sub-section (1) of section 12 of the UOR Act. Any other course is not open to him[9].

The Venkateswara University Case[10]

The three year term of Professor M.V. Ramasarma, Vice-Chancellor of Sri Venkateswara University, expired on 26 Sept., 1983. In the vacancy caused hereby the Chancellor of the University, Shri Ram Lal (the then State Governor of Andhra Pradesh) appointed Prof. G.N. Reddy as the next Vice-Chancellor of the Sri Venkateswara University. The ame of Prof. Reddy was recommended in a panel of hree names prepared by a 3-member committee ppointed for the purpose under the provisions of the University Act; but his name appeared at the second lace. The first name, in the panel, and so to say bove Prof. Reddy's name, was that of one Shri I.J. Naidu, IAS (Retd). Shri Naidu's name was approved y the State Chief Minister, Shri Nandmuri Tarik amarao and his ministerial colleagues in the State overnment. The petitioner was a practising High Court advocate, and a Telugu Desam sympathiser. He questioned the appointment of the second respondent, and prayed for a writ of *quo warranto* to Prof. Reddy, requiring him to show cause as to by what legal authority he could claim to use, exercise and perform the rights, duties and privileges of the office of the University Vice-Chancellor. The petitioner impleaded the State Government, but did not make the Chancellor a party-respondent. Nonetheless, on behalf of the Chancellor, who was also the Governor for the State of Andhra Pradesh, a counter affidavit was filed by his Secretary, and therein the circumstances in which the second respondent's appointment was made were stated and explained.

The petitioner, as also the first respondent the Government of Andhra Pradesh shared, and put forth the common view that the University Chancellor and the State Governor were not two different persons. While being the Chancellor, he was the State Governor as well, and as such would act only on ministerial advice. The petitioner relied upon certain decisions.[11] On the other hand, for the respondent No. 2 it was submitted that there was a clear distinction between the two offices, the office of University Chancellor and the office of the Head of the State Government respectively, even if the latter was ex-officio University Chancellor under the provisions of the State University Act. It was urged that the offices of the University Chancellor and the State Governor were two distinct and independent offices. The first office was established under the University Act, and the second under the Constitution. While acting as the Chancellor, he did not exercise the State executive power vested in him, and would act only in exercise of statutory power under the University Act. The advice tendered by the Chief Minister and the Council of Ministers in this respect was "neither required, nor binding on the University. Reliance was placed on certain desions.[12] An opinion of Shri M.C. Setalvad, the first Attorney-General of India given in 1954 to Shri C.M. Trivedi, the then Governor of Andhra Pradesh, was also referred to.

The court, agreeing with the second respondent, held that the appointment was made by the Chancellor, who held a distinct and separate office from the constitutional office of the State Governor. The court held further that the ministerial advice was not binding upon him, while he would act as the University Chancellor.

The Maharshi Dayanand University Case[13] :

The Chancellor of the Maharshi Dayanand University, Rohtak (Haryana), respondent no. 1 appointed Shri Hardwari Lal, the respondent no. 2, the first Vice-Chancellor of the M.D. University, on 27th October, 1977. The appointment was made under the First Statutes of the University contained in a schedule to the M.D. University Act, 1975. At the time of appointment, the Chancellor gave to the second respondent an assurance that in continuation of his 3-year term of office, he would be reappointed Vice-Chancellor for one more term of 3-years without any break in service. However, on expiry of the first term of 3-years, the University Chancellor (the 1st respondent) did not renew the appointment of respondent no. 2 for a further 3-year term. So disappointed, the respondent no. 2 moved the State High Court by a petition on 16 September 1981, contending that the rule of *promissory estoppel* would apply in the case, and so he prayed for a direction to the Chancellor in terms of the assurance given by him at the time of his (respondent No. 2's) initial appointment.[14] The High Court for the State upheld the plea of respondent no. 2 Against the order of the High Court the University Chancellor and the State Government preferred a special leave petition in the Supreme Court; and prayed for stay of the High Court order. The stay was granted on 30 Sept., 1981, thus unseating Hardwari Lal from the office of the University Vice-Chancellor. In June, 1982, the parties entered into a compromise, and thereunder the respondent Hardwari Lal was permitted to complete his second term in continuation of his first office term till 27th October, 1983. By reason of this compromise, and with permission of the Supreme Court, the appeal was withdrawn by the University Chancellor. Not only this, subsequently the Chancellor issued one notification on 19 October 1983, and thereby appointed Hardwari Lal, Vice-Chancellor, for a further additional period of 19 months and 10 days covered by the stay order, beyond 27 October, 1983, although he had already been paid salary for the same period of stay. The reason given for his appointment in respect of the additional period was that he was interested in building up the University in its formative years.

The petitioner, Balbir Singh, a member of the Haryana Legislative Assembly, alongwith a Professor of Kurukshetra University challenged this notification and appointment for the additional period. The petitioners contended that the University Chancellor had no power/discretion to appoint Shri Hardwari Lal after expiry of the period of second successive 3 years term on 27th October, 1983. They contended, however, that no appointment could be made for any additional period; and as per court compromise that notification was void. They further prayed for a writ of *quo warranto* questioning the appointment of Hardwari Lal for any additional period, and in consequence his removal from the office of the University Vice-Chancellor. The petitioners contended that the respondent no. 2 could be appointed to the office only for two consecutive terms, and for no further period whatever. They contended that the second respondent could not also be appointed thereafter at all, because, he had already completed the age of 65 years, even if for facilitating appointment of Shri Hardwari Lal for 19 months and 10 days in continuity of his two 3-year terms, a notification had been promulgated. The respondent Chancellor opposed the petition, and pleaded that the appointment for 19 months and 10 days was necessary to make good the terms of the compromise and in accord with the earlier order of the State High Court in lieu of the period of litigation during which the appointee did not actually exercise the duties of the office of the University Vice-Chancellor. On behalf of the respondents *locus standi* of the petitioners was also questioned; and it was argued that the petition served no public interest. Disagreeing with respondent no. 1, the High Court allowed the petition. The court further held that the petitioners were public men, and as such were interested in public affairs. They had interest in the proper functioning of the University.

The Bhopal University Case[15]

The petitioner Zaheer and a few other residents of Bhopal questioned the appointment of Shri R.C. Shukla respondent no. 2 as Kulpathi (Vice-Chancellor) by the Kuladhipathi (The Chancellor) of the Bhopal University. The appropriate law, the Madhya Pradesh Vishwavidyalaya Adhiniyam, 1973 (no. 22 of 1973) empowered the Chancellor (no other than the State Governor) to appoint a University Vice-Chancellor in accordance with the procedure established by section 13 of the Adhiniyam. The Chancellor would appoint a 3-member committee some six months before the anticipated vacancy in the Vice-Chancellor's office. The committee would prepare and recommend a panel of three persons. The Chancellor would appoint one of such recommendees as the Vice-Chancellor. If the committee failed, then another similar committee to recommend a panel of names within the specified time could be appointed. The Chancellor would appoint one of the three recommendees whom he deemed fit as (Vice-Chancellor) The Kulpathi. But, if the 3-member committee had submitted a panel, then an appointment of any one outside the recommended panel would be illegal; and would for that reason be quashed. The committee would be an important body as it would be investigating relative merits of qualified persons to be recommended for the appointement. The committee could as stated above recommend three names; and if it so thought fit might even suggest two, or even one name. The codition of a panel being of not less than three persons was merely directory.[16] The appointment of Dr. S.C. Shukla was callenged, as the panel of names prepared and recommended by the 3-member committee contained less than three names. Nevertheless, the State High Court upheld the appointment, as Dr. Shukla's name was recommended by the committee.

The University Chancellor appoints Vice-Chancellors(s) in exercise of his statutory power under the appropriate University Act. The discretion of the Chancellor in the matter is regulated by the established statutory procedure set forth in the Act. In this respect he does not act constitutionally, and can make an appointment without any ministerial advice of the State Chief Minister or even of the Education Minister. Hardly in any contested case of appointment of a Vice-Chancellor, the court has doubted this aspect of the matter. The appointment of Vice-Chancellors without advice, or in opposition to the ministerial advice have been upheld by the Courts. Appointment of Vice-Chancellors of the Calcutta University and Jadavpur University by Shri A.P. Sharma, the Chancellor, (the then West Bengal Governor) against the advice of the Left Front Government of the State of West Bengal, or the appointment of Professor Reddy as Vice-Chancellor of Venkateswara University by Shri Ramlal, the Chancellor (Andhra Governor) in opposition to the advice of the Telugu Desam Party Government of the Andhra Pradesh State, have been held good and unassailable. The open disagreement between Governor - Chancellors and the State Government during the past few months has betrayed he growing politicisation of the office of Vice-Chanellor. The long-drawn out confrontation on the ssues relating to the selection of persons to be ppointed as Vice-Chancellors in West Bengal during ne term of office of Shri A.P. Sharma assumed disroportionate dimensions, because, the Chancellor ould not appoint the recommendee of the left Front overnment, as Vice-Chancellor of the Calcutta Uniersity. Recently, even Shri Govind Narain Singh, the hancellor of the Universities in Bihar appointed ersons of his own preference as Vice-Chancellors for e various Universities rather than those of the choice the Chief Minister Shri Bhagwat Jha Azad. The overnor-Chancellor distinguished between the role of the State Governor and the Chancellor of the various Universities. The Chancellor is not controlled or bound by the restrictions imposed on the Governor, said the Chancellor-Governor. He claimed that Universities were autonomous, and were not departments of the State Government. Apriori the head of the State Government (the Chief Minister) claimed that his advice in the matter could not be ignored, as the statutory power/discretion vested in the Chancellor (the Governor) was derived from a law passed by the State Legislature, the Governor-Chancellor had only a constitutional position, and should have acted only in accordance with his advice. A similar view put forth by the TDP Chief Minister of Andhra Pradesh was not approved by the Andhra Pradesh High Court.

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MASTERY LEARNING
A Remedy Against Educational Wastage

U.S. Chaudhari*
Shobha Vaidya**

Wastage is premature withdrawal of a child from school at any stage before the completion of a course. It can also be defined as failure of the school to retain a child in a class for a period of more than one year. Education Commission (1964-66) has observed that 'wastage and stagnation' like headache and fever are not diseases in themselves. They are really the symptoms of other diseases in the educational system, namely, the lack of proper articulation between education and life, and the poor capacity of the schools to attract and hold students.

The extent of wastage and stagnation in our system is very large. This problem was first highlighted by the Hartog Committee in 1929. Although we have been discussing this issue almost continuously, since then, very little has been done to reduce its high incidence. The UNESCO report (1980) concludes that, "......dropout is closely related to the factors governing the demand for the supply of education while the level of repetition depends more on factors internal to the educational system." It is not wrong to say that under achievement, which is most likely to cause repetition, will ultimately lead to dropping out especially as the maximum number of per pupil repetitions allowed is exceeded. As Hallada (1979) has pointed out : "The opponents of repetition forcefully countercharge that repetition not only fails to improve the learning of under achievers, it adversely affects pupil's self concept."

Absenteeism directly challenges the value of education. Second, truancy is usually thought to be a problem because the absent children cannot benefit from the education programme that the school offers. Truancy also interrupts the continuity of course content which is crucial for learning. The interruption caused by absenteeism places extra demands on educators and detracts them from their effectiveness. Third, when children play truant, they are not merely missing educational opportunities, but they may very well go unsupervised. This generates community concern about deliquency. Truancy may be a symptom of school based problems, but when it is widespread i
means that the system is not working well and chil
dren's needs are not being met. Truancy is a reflec
tion of unmet educational needs and placement prob
lem or more serious management, administrative
education and school quality problems. Anothe
school based factor has to do with classroom environ
ment. Research indicates that classrooms wher
teachers and students both perceive that the instruc
tional style fosters independence, and where the chil
dren receive personal support and are better attende
such problems as truancy or vagrancy do not appear.

Therefore, the fundamental problem facing th
country is to improve the quality of education t
reduce stagnation and wastage to minimum. Master
Learning Strategy (MLS) can be very useful approac
in this direction. MLS can be implemented in India
conditions without much extra efforts and expend
ture. One important thing to be remembered is th
this strategy requires no elaborate and expensi
technology except the technology of developing in
tructional material. In this approach the prescrib
curriculum can be transacted with fixed period
time, and by giving a little extra time for corrective
and home work. This approach relies primarily c
human beings for its success rather than on a
mechanical technological device which a developi
country like India can hardly afford. The MLS c
be implemented with minor structural chang
throughout our school system (Chaudhari and Vaidy
1988). The MLS can be helpful for talent develo
ment too.

Mastry Learning is defined as a teaching learn
approach which asserts that under appropriate i
tructional conditions, virtually all students can a
will learn most of what is taught in schools. The M
starts with the assumption that almost all stude
can and will master a great deal of what is taught.
instruction is approached systematically; if t
students are helped when and where they have lea
ing difficulties; if they are given sufficient time
achieve mastery, and if there is some clearcut crite
of what constitutes mastery.

Thus, by improving the quality of instruction M can be helpful in the improvement of educational quality. Entry resource measures are not predictive of student learning under this strategy. Extremely high quality instruction operates to help most students to achieve approximately the same high level in spite of differences in intelligence, aptitudes or entry behaviours brought to the learning. Mastery Learning methods attempt to design instructional methods and material to fit students' aptitude problems. This approach also supplements the usual group-based instruction with feedback/corrective procedures. The accumulated evidence suggests that effective feedback/correction procedures can transform classroom instruction of any initial quality into instruction of optimal quality for each learner. The research demonstrated that persistence (i.e. the ability of keeping on at a task) may be increased by some form of external positive reinforcement or learning success. The quality of instruction appears to increase or decrease perseverance, and perseverance indicates that motivation is related to academic achievement.

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It is fairly well documented that poor academic achievement is associated with dropping out. Dropping out of school has been viewed as a serious educational and social problem. Most dropouts have serious educational deficiencies that severly limit their economic and social well being throughout their adult lives. In this way dropping out of school affects not only those who leave school but also society at large. In future the relative economic disadvantage of dropping out of school could be even greater than today. Without a sound basic education, dropouts will be less able to learn new skills and adapt to a changing work environment. Therefore, they could become even less employable. Thus, reducing the wastage or dropout rate has a direct economic impact on the institution and on society at large. In the only comprehensive study that has ever been done on this facet of dropout problem, Levin (1972) identified seven social consequences of inadequate education, which he defined as the failure to complete high school: 1. Foregone national income; 2. Foregone tax revenues for the support of government sevices; 3. Increased demand for social services; 4. Increased crime; 5. Reduced political participation; 6. Reduced international mobility; and 7. Poorer levels of health.

Concerted and cooperative efforts made by educators, policy-makers and educational researchers can improve our understanding of the problem, and also can equip us to devise and employ ways to reduce its incidence. Mastery learning model has been tried to reduce the incidence of failure and dropping out from schools with considerable success.

While discussing dropout rate of adult population, Boshier (1985) has pointed that earliest dropout research focussed on the influence of internal variables. The next wave of studies counteracted on environmental variable. If dropout variance does not reside in the learner it must stem from environmental influences. People were inclined to dropout if classes were large, facilities wanting or the instruction incomplete. Though Boshier (1985) has found these results in relation to adult learners, they are applicable to primary and secondary school learners as well.

One conceptually satisfying way of dealing with motivational problems associated with dropout is to borrow concepts from perceptual psychology and portray dropout as stemming from lack of 'goodfit' between the persons and environments. For every

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person there is an optional environment and for every environment an optional person.

Common instruction to all children at particular grade level without regard to ability and individual differences between the learners must be avoided. It must be remembered that new educational practices demand selection of material and teaching methods that are suitable not only for different levels but also for different maturity levels in the same age. Slavin (1987) has pointed out that 'rapid coverage' is likely to be of greatest benefit to high achievers, whereas 'high mastery' is of greatest benefit to low achievers. Resolving the 'coverage-mastery dilemma', as recommended by mastery learning theorists, is likely to produce a "Robinhood" effect as a by product.

In industrially developed countries dropouts are also becoming a serious and growing problem, and an illiterate or semiliterate population has been detected in number of western countries also. In India a high dropout rate of 60 per cent from class I to V and of 75 per cent among the remaining students upto the age of 14 years has made a mockery of the Centre's universal elementary education system. The removal of educational inefficiencies are necessary if universal primary education, equality of educational opportunity and widespread literacy are to be achieved. Indeed, UNESCO (1980) has estimated that roughly 25 per cent of all primary schools placed in the developing world are lost to educational wastage. In India where the estimated population in the age group 6-14 will be about 18 crores in 1995 we have to be much more cautious. Hence, the dilemma facing educational planners is how to increase the flow of pupils through the educational system by reducing educational wastage while simultaneously maintaining the quality of the system at reasonable per pupil cost. Again, wastage ignores both the benefits afforded to the repeaters by spending an extra year in school, and the benefits accruing to the dropout before leaving school. Total wastage, then, merely, reflects the drag of repetition and dropout on the flow of promotion within an educational system.

The financial wastage on account of [illegible] of pupils from one grade to another at the primary stage amounted to Rs. 18.81 crores. The total wastage for four years worked out to approximately Rs. 75.35 crores which constituted 27.6 per cent of the total expenditure on primary education during the period between 1957-1958 and 1960-1961. A developing country like India can hardly afford such ill-directed expenditure.

The appalling dimension of educational wastage at the elementary stage is indeed a matter of great concern when we consider that directive principles of state policy under article 45 of the constitution envisage free, compulsory and universal education for all children upto the age of 14. In order to attack these problems, majority of educators feel that learning and teaching strategies which have dual advantages of group and individualised learning, should be employed.

Studies made in this area suggest that not only eighty to ninety per cent of the students can be made to learn nearly eighty to ninety per cent of the content, but mastery strategy can also raise their self esteem, and enable them to attain positive attitude towards the subject of study.

Guskey (1980, 1987, 1988) is right in concluding (through the synthesis of researches on mastery learning) that mastery approach has allowed many teachers to dramatically increase the number of students in their classrooms who learn, and learn very well what they as teachers have set out to teach. Therefore, if systematically practised, mastery learning strategy could be of immense help to the teachers and administrators in arresting the rising rate of dropouts by raising achievement, self-concept and attitude towards schooling of the learners (Anderson and Block, 1985). ☐

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Higher Science & Technical Education

In a very thoughtful address Prof. C.N.R. Rao, Director, Indian Institute of Science and Chairman, Science Advisory Council to the Prime Minister, touched upon the weak points in the higher science and technical education today and made some very constructive priority recommendations in this behalf. He said, "admission to the science specialization stream should be made selective; students in the special stream must get the best possible science education. A few model undergraduate science colleges or institutions should be started in each State to attract students for science just as IITs and Regional Engineering Colleges have been attracting students for engineering education." Prof. Rao was delivering the Convocation Address at the Ninth Convocation of the Anna University, Madras. Excerpts.

Higher science and technical education today presents a rather discouraging picture. There are serious complaints at all levels about the lack of responsiveness in the system. Academic activities are at a low ebb. Some of the factors of a complex nature have contributed to the present condition. Some of the factors are related to processes and pressures in our society and therefore reflect the social features prevalent in a particular region. However, there are several other aspects where planners, administrators and teachers can do much.

Convocation

Undergraduate Education

We cannot consider problems and challenges of higher education without reference to problems faced in school education. We obviously need to re-examine science education at schools. There is no need to stuff our students with information on scientific subjects. Inculcation of scientific attitude in students is more important in the early school years, say up to 10th class, particularly because many of them may not turn out to be scientists. It is also important that we make sure that there is a proper vocational stream available at school level so that all students do not rush towards science and technical courses at college level. There is need to provide general science courses at lower levels and give specialised courses only in the higher (11th and 12th) classes.

In spite of many of the problems that we are facing in science education, it must be admitted that many good students still come out of our school system and a good percentage of them do extremely well in scientific and technical professions. However, in a large majority of schools in the country, the quality of training and facilities are inadequate and we have to bring their level up.

There is undue interference by too many forces in the planning, administration and management of universities. It is not due to the concerned governments alone. Affiliated colleges have been given too much importance in managing universities; this can be eliminated by delinking undergraduate examinations from the universities. Universities should provide leadership in curriculum development, higher education at post-graduate level and research. Absence of a proper academic as well as administrative leadership, structure and practices (including indiscriminate rotation of department heads) have had damaging effect.

The common problems associated with undergraduate education are well known. Undergraduate education is concentrated in colleges, many of which are under-equipped, overcrowded and poorly staffed. Laboratory and Library facilities are generally inadequate; proper text books are not available. The level attained by a B.A. or B.Sc. graduate is very much inferior to that of a graduate in advanced countries. It is at the undergraduate level that we see this sudden gap in the quality of science education. While there are some select centres where the quality of post-graduate science education is reasonably good, similar undergraduate centres are not available for bright students who want to take up science. There are, however, several good institutions in engineering and technology.

Undergraduate science curricula are rigid even in the best of places. Combinations such as PCM and CBZ do not provide the necessary breadth or depth. The absence of flexibility has made it impossible for a good student to obtain sound training. For example, a physics student cannot study biology just as a biology student can never study mathematics or physics. We have to make flexible programmes available at least in some of the colleges.

It is important that we have at least two streams in science education, one of a general nature and another of a specialised nature (for those who want to be scientists). The absence of such specialised training is making our undergraduate education purposeless. There is no college today which imparts training similar to that in the advanced countries.

Even undergraduate education in engineering has many problems and drawbacks, the most serious one being the indiscriminate number of overcrowded and underequipped colleges. The capitation fee system has had a bad effect on engineering education. The curricula as well as the laboratory facilities in a large number of engineering colleges are below par. What is more alarming is that some of our institutions of excellence are also slowly decaying. The best of our engineering graduates go abroad or go for management and sales.

The most disturbing feature in our education system is that of examinations. While most undergraduate education is imparted in colleges, examinations are conducted by universities who have no direct interest or control in the educational process itself. We have to do something drastic to minimise the importance of examinations and increase the role of colleges in evaluation and examination. It appears as though much of the time of universities and teachers is spent in organising examinations and in declaring results. This is counter-productive.

In another 15-20 years, the student enrolment will get doubled. Can we even duplicate the present facilities (however poor)? Selectivity is obviously important.

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Postgraduate Education

Many of the problems mentioned earlier with respect to undergraduate education also hold good for postgraduate education. There are too many institutions offering postgraduate education in science. Most of them are under-equipped and poorly staffed. I see no point in producing such a large number of M.Sc. graduates. At the Master's level, the number of people trained should have some relation to the national manpower requirements. We must have selective admission and selective recognition of institutions at least at the M.Sc. level. It is often said that our M.Sc. is not as good as B.Sc. from the better universities of advanced countries. This has to be rectified if our training has to gain respect in the eyes of our own community and in the rest of the world.

University departments are supposed to carry out research. Although some good work has come out of the universities, it would not be wrong to say that most university departments have poor infrastructure facilities. They are also short of highly qualified and motivated teachers. Nowadays, research support to individual scientists is quite satisfactory. Some of the departments are getting infrastructure support under the COSIST programme. However, the institutional infrastructure continues to be generally poor. Massive inputs are required for this purpose. Shortage of student accommodation and amenities, poor electricity and water supply are common. Unless the universities have sufficient strength to support higher education and research, the support we may give to individuals or departments would not yield maximum benefit. It is, therefore, important that universities get more basic bread and butter funding.

Postgraduate education is not attracting the best talent, the problem being especially severe in engineering. Engineering research in the education sector has suffered badly because of this. The 3-semester M.E. programme has affected research efforts of engineering faculty; the possibility of thesis and non-thesis option for Master's degree needs to be promoted.

Some Priority Recommendations

Admission to the science specialization stream should be made selective; students in the special stream must get the best possible science education. A few model undergraduate science colleges or institutions should be started in each State to attract students for science just as IITs and Regional Engineering Colleges have been attracting students for engineering education.

Universities should no longer be responsible to conduct undergraduate examinations. Individual colleges or groups of colleges should conduct examinations and give a certificate to the students. Better still would be to make more colleges fully autonomous. Although this may pose some difficulty in the initial stages, after a few years the situation will stabilize. Unless we do this, in another 15 or 20 years—when we would have double the student population of the present day—we cannot possibly conduct examinations the way we are doing now. In order to calibrate performance, the university could give one or two tests in each subject. This would require that admissions to post-graduate institutions as well as employment will have to be based on selection examinations.

Textbooks in all subjects (at undergraduate level at least) should be made available to students. Colleges must have several copies of texts in the reserve sections of libraries. Fully equipped Regional Libraries should be started in the 8th Plan.

Computer facilities and formal training programmes in computing must be made available in each major town or city, if not in each college. Such courses could also be conducted during holidays and during off-hours to enable participation of a wider group of students.

There should be more recognition and support for the fabrication and production of local equipment and instruments. We are not badly short of experimental skills in our scientists and engineers.

In view of the exploding frontiers of knowledge, better ways of training and retraining teachers will have to be explored. We have to involve our leading national laboratories in postgraduate education in chosen areas of science and technology.

Support to select departments under the CAS and DSA programmes of the University Grants Commission should be enhanced. It would be desirable to support research units of individual workers where necessary; this would be specially applicable to situations where the department itself may not be strong enough to get adequate support.

Infrastructure of universities and engineering colleges has to be improved greatly. Since there is no simple way of doing this other than by increasing the budget of universities, it is proposed that an additional source could be rightaway provided by encouraging funding agencies to grant a reasonable percentage (say 20 per cent) of the research grants as overheads.

This would mean that those universities which carry out good research work can also get good support from the funding agencies. This would also act as a good incentive for carrying out R & D work.

Project-oriented undergraduate instruction should be encouraged both in science and in engineering colleges rather than stuffing students with bookish material. Such project-oriented education could be given to select students, if not to all students. This would become possible only if the undergraduate curriculum becomes flexible; this would also enable students to take a good mix of courses and climinate the imbalance that we find now, where physical or engineering students cannot take biological courses and *vice-versa*.

Research, development and design, instrumentation etc. should be given proper academic recognition, if necessary, by awarding appropriate degrees. ☐

AMERICAN STUDIES RESEARCH CENTRE

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The candidate for this position must be totally fluent in English and possess a Ph.D. either in some area of American Studies or in a discipline requiring competence in American scholarship. They must be thoroughly familiar with the United States and American work in their fields.

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The contract will be for an initial period of three (3) years, which may be extended to five (5) or more years. Candidates will be classified according to their credentials. Pay scales are :

Senior, Rs. 4500-150-5700-200-7300; Junior, Rs. 3700-125-4700-150-5300

Allowances admissible in the scales follow those of Central Universities. Candidates called for interview will be paid first-class round-trip train fare and given local accommodation. Applications on plain paper giving full particulars, through proper channels, and listing up to three (3) referees, should be sent before 15th May, 1989 to The Director, American Studies Research Centre, Hyderabad 500 007.

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Buddhist Thoughts for Non-violent Society

Department of History and Culture of the Gujarat Vidyapith, Ahmedabad, organised a 'National Seminar on Buddhist Thought in India and its Potential for Non-violent Society' from 20-23, March 1989.

In his inaugural address His Holiness Dalai Lama said that this century had witnessed a constant conflict between the democratic and dictatorial forces. It appeared till the middle of this century as if national and international problems could be solved with the use of force. But now it is being increasingly realised by most that the use of force might lead to the annihilation of mankind. Throwing light on the principles of Buddhism which has enlightened the people of different lands through centuries, he said truth, tolerance, non-violence, knowledge and wisdom were more akin to human nature than hatred and other evil tendencies. Wars and violence have only added to human misery.

He said that the 20th century had also seen rapid advances in Science and Technology. But one could lead a peaceful and prosperous life and get rid of sorrows and sufferings through the path shown by Lord Buddha. Mahatma Gandhi was among the latest of such leaders who had adopted the preachings and practice of non-violence even in day-to-day and political life.

Describing himself as a Buddha Bhikshu, the Dalai Lama appealed to all for interaction among all philosophies and beliefs which preach universal brotherhood, friendship and compassion. He recalled the contribution of Mahatma Gandhi who began his experiments with truth and non-violence n the twenties. Initially the people were skeptical about the success of is method but later they realised that non-violence alone could provide lasting peace.

Earlier, welcoming His Holiness Dalai Lama and the delegates, Prof. Ramlal Parikh, Vice-Chancellor, Gujarat Vidyapith said that the Vidyapith was founded by Mahatma Gandhi to embody the process of elevation of the soul through learning so that education fosters the process of social transformation towards Ahimsak Samaj—a Non-violent Society. Such a society is to be founded on freedom that leads to liberation. Liberation is the very anti-thesis of oppression and violence.

Gandhiji was only the most recent of the great spiritual teachers who have always reminded humanity of the power and the inescapability of Ahimsa both for individual and societal purposes. Lord Buddha was one of the earliest in this great endeavour. Obviously our mind turns to the thoughts and teachings of the Buddha for fulfilling the Gandhian perceptions of Ahimsa, said Prof. Parikh. Peace and harmony are continuously at stake. The common man is the victim of ever mounting tensions and Lord Buddha's teachings are a powerful antidote to this malaise.

ગુજરાત વિદ્યાપીઠ
બૌદ્ધદર્શન અને અહિંસક
NATIONAL SEMINAR ON BUDD
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His Holiness Dalai Lama lighting the lamp to mark the inauguration of the National Seminar while Prof. Ramlal Parikh (left), Vice-Chancellor, Gujarat Vidyapith looks on.

The Centre of Buddhist Studies in the Gujarat Vidyapith is now in its third year. A few books of Buddhist literature like Dhammapada have been edited. A three-volume encyclopaedia on Ahimsa is also under preparation, Prof. Parikh added.

The seminar was divided into four sessions and the topics discussed included Concept of Non-violent Society envisaged in Buddhist literature; Ways of achieving and sustaining Non-violent Society as visualised in Buddhist thoughts; and Application of Buddhist ideas to contemporary problems.

The seminar was attended by over 1000 students and teachers from universities and research institutions including Buddhist Monastries from Delhi, Chandigarh, Pune, Sarnath, Karnataka etc. A

43 page Bibliography of Books in Sanskrit, Pali, Hindi, Gujarati & English on Buddhist Thought was also published on this occasion.

An exhibition of Buddhist Relics in Gujarat, organised on the occasion in collaboration with the Department of Archaeology of the Government of Gujarat, was opened by His Holiness Dalai Lama.

Education for Rural Transformation

An expert group on rural education set up jointly by the National Council for Educational Research and Training (NCERT), the India International Centre (IIC) and the Rajasthan based Gandhi Vidya Mandir, has come out with a blueprint giving a rural-oriented thrust to India's predominantly urban-oriented educational system. The group has suggested setting up of rural universities and institutes at state and district levels respectively besides strengthening existing institutions.

The group in a set of recommendations recenlty submitted to the Human Resource Development Ministry called for speedy action to accord rural education an overriding priority in development planning and in mobilisation, allocation and utilisation of resources.

The group said schools, with modern teaching facilities suited to local needs and the provision for Parent - Teacher Association (PTA) to improve the socio-economic, political, moral and health-care aspects, should be set up in rural areas. The rural education deserved close attention of planners, administrators and academicians in the context of national policy on education—1986.

The group felt that the present educational system was "predominantly urban-oriented" and lacked functional thrust and therefore, "ill-suited" to the task of furthering the cause of rural transformation. The educational institutes in rural areas should be community-centred, capable of responding to local needs and of developing and utilising local available resources, both human and material, to the optimum level.

The 'Blueprint', entitled "education for rural transformation", was presented to Mr. J.V. Raghavan, secretary in the HRD Ministry, at a function by the eminent jurist and chairman of the India International Centre, Dr. L.M. Singhvi.

Networking Calcutta Libraries

42 major libraries of various scientific institutions, research laboratories, medical colleges and universities in Calcutta would be brought under a computer network (CALIBNET) for mutual sharing of information. This would be a major breakthrough in information technology through rapid developments in computer and communication innovations. The project is being funded by the National Information System for Science and Technology (NISSAT) of the Department of Scientific and Industrial Research.

With the introduction of the computerised network it would be much easier to find out important journals as well as to get the abstracts of particular papers in it in no time.

The Institutions which would be brought under this project include Bose Institute, Science College, Indian Statistical Institute, Medical Cancer Research Centre, Indian Institute of Chemical Biology, Indian Association for the Cultivation of Science, Geological Survey of India, Botanical Survey of India besides Calcutta and Jadavpur universities.

Northern, western and southern zone would also have similar computerised network of major libraries in their respective regions which would be gradually expanded. All the regional network may be linked at the ultimate stage through a project called INDNET.

Hundred Years of Public Administration

Prof. S.P. Verma of the Indira Gandhi National Open University said that for every problem, a solution could be found in Public Administration. The staff and the students of this discipline should therefore equip themselves with the latest techniques and ensure an orderly growth and development in the world. He was speaking at the valedictory function of the two-day UGC seminar on 'Hundred Years of Public Administration—Trends and Perspectives' organised jointly by the Kakatiya School of Public Administration, Local branch of the Indian Institution of Public Administration (IIPA) and the Department of Public Administration of Kakatiya University.

Prof. Verma praised the universities in Rajasthan, Punjab and Andhra Pradesh for making great strides in teaching and research of Public Administration. He felt that in view of ever increasing problems in the political and administrative sectors, the role of well-trained personnel in Public Administration in the coming years would become all the more greater.

Prof. Jafar Nizam, Vice-Chancellor of Kakatiya University, who presided over the function asked for tailoring the teaching and the research programmes to the needs of the society. He said time is ripe now for the public administration personnel to diagnose and treat, the social maladies afflicting the country.

40 scholars of 16 universities from 7 states presented 32 papers in the four sessions of the seminar.

Subjugation of Women and Remedial Measures

The Mother Teresa Women's University organised a two-day Seminar with a focus on "Points of Subjugation of Women in regional and historical perspective and suggested remedial measuses for 2000 A.D." as part of the International Women's Day Celebrations on 8th and 9th March, 1989 at Kodaikanal. The Seminar was inaugurated by Dr. M. Lakshmanan, Vice - Chancellor, Madurai Kamaraj University and the valedictory address was given by Sri Devendra Kumar, Vice-Chancellor of Gandhigram Rural Institute. Distinguished social scientists participated and presented papers on the theme of subjugation of women with relevant aspects which led to a full and fruitful discussions.

The remedial measures suggested at the Seminar were as follows :

(1) Poverty being one of the major causes for suppression of women particularly in rural areas, the benefits of anti-poverty programmes like IRDP, TRYSEM and DWCRA should be extended to the rural people.

(2) Change in social attitude — the Voluntary Organisations and educational institutions particularly the universities can play a vital role in creating an awareness among women and also organise them to fight for their rights.

(3) Equal participation in trade unions should be given to women; otherwise it is impossible to fight for their rights.

(4) Thirty per cent reservation policy should be effectively implemented.

(5) Women's education has to be encouraged even made compulsory to a certain level. All educational and employment avenues should be open to women.

(6) Textbooks should be changed without gender bias.

(7) Equal pay for equal work.

(8) There shoutd be a common civil code for all the citizens in India.

(10) Encouraging women to write their experience, for each has a story to tell.

(11) The craze for male children has to be eliminated from the minds of both men and women.

(12) Steps should be taken to educate women of their rights and privileges. Most of the women are ignorant of their rights to a share in family property. Measures should be taken through education, media and constant propaganda to mould women's attitudes to life, family, society, rituals, traditions and state.

Dalit Literature in Gujarat

Shri Joseph Macwan, a well-known Dalit writer, recently delivered a lecture on Dalit Literature in Gujarat : Origin, Growth and Prospects organised by the Centre for Social Studies of the South Gujarat University at Surat. He said that Dalit workers would hold their cross on their own shoulders. Noting that there is now social awakening among the Dalit masses, he asserted that the Dalit literature had much brighter future in Gujarat.

Mr. Macwan dwelt at length on the history of Gujarati literature and made special mention of the poets and novelists who wrote on the conditions of the poor, exploited and the underprivileged. His main contention was that the literature almost upto 70's was elitist in its orientation; based more on emotion than deeper concerns. The influence of Sanskrit was widely felt. Minor characters always spoke in Prakrit and not in Sanskrit. The Gandhian era made a break-through in Gujarati literature. New trends were perceived but the main purpose was independence of India. The literature then did not uncover the inbuilt oppression and injustice in the society. The landless labourers did not attract much attention of the Gujarati writers. The issue of Harijans was always touched upon, but more for its political gains, he felt.

Referring to the publication of 'Kalo-Suraj' and 'Akrosh', he said that these works marked a new watershed in Gujarati Dalit literature that symbolised the beginning of the Dalit Sahitya in Gujarat. Dalit literature has begun mainly with poetry but now slowly Dalit writers have taken to other art forms like short story and novel.

Mr. Macwan in his presentation made it clear that the Dalit writers did not want to form a separate group but they certainly wished to create social awakening through their collective efforts. They wish to highlight the conditions of Dalit masses of Gujarat society. The Dalits are fighting for their dignity and rights. Dalit writers will be of help to them in their struggles, he said.

The lecture was followed by series of questions on role of Dalit literature in mass awakening; linkages between literature and movement, and specificity of Dalitism.

New Grades for Technical Teachers

The Ministry of Human Resource Development has recently announced new pay scales for teachers of engineering colleges and other technical education institutions of comparable status. The revised scales will benefit about 15,000 teachers and will come into effect from January 1, 1986.

The scheme of revised scales shall be applicable to teachers, librarians and physical education instructors in engineering colleges, engineering and technological faculties, departments of universities and other comparable institutions of technical education, including architectural, town planning, management, pharmacy, applied arts and crafts etc., at the degree or equivalent level.

The scheme does not apply to Indian Institutes of Technology for which the matter is being examined separately.

The revised pay scales will be implemented in all technical education institutions fully financed by the Central Government and covered under the scheme. The State Governments which wish to adopt and implement the scheme of these revised pay scales would get financial assistance from the Central Government to the extent of 80 per cent of the additional expenditure for the period from January 1, 1986, to March 31, 1990. The remaining 20 per cent of the expenditure would be met by the State Governments from their own resources.

The State Governments after taking local conditions into consideration could use their discretion to introduce different scales of pay and also may give effect to the revised scales on January 1, 1986, or a later date.

The existing teachers in technical education institutions, where the merit promotion scheme is in operation, will have an option to continue to be governed by the provisions of the scheme, provided they exercise their option in writing prior to their pay fixation under this scheme.

They will also be entitled to the designations envisaged for various categories of teachers in that scheme.

The revised Pay Scales would be asunder : Lecturer : Rs. 2200-4000; Lecturer (Senior Scale) : Rs. 3000-5000; Lecturer (Selection Grade) : Rs. 3700-5700; Associate Professors : Rs. 3700-5700; Professor : Rs. 4500-7300; Principal (Engg. Colleges/TTT's/degree level technical institution : Rs. 6300-7300; Director (IIMS) : Rs. 7300-7600.

The age of superannuation of all teachers in technical institutions shall be 60 years with a provision for re-employment up to 65 years in deserving cases.

The Government took the decision on the revised pay scales and other service conditions of the teachers on the basis of recommendations made by the National Expert Committee set up under the chairmanship of Prof. R. N. Dogra.

The Dogra Committee recommendations were first considered by the All-India Council for Technical Education at its meeting held on January 8, 1988.

The AICTE is also to work out procedures and norms for promoting efficiency and effectiveness of the system of technical education and to help individual teachers to grow, develop and advance on the basis of merit.

Inter-Varsity Research Centres

Prof. Yash Pal, Chairman, UGC, recently said in Tirupati that the Commission would set up inter-university centres to provide common research facilities. Beginning with New Delhi and Pune, these centres would be "owned and managed" by the universities as cooperative ventures. "It will be an inter-university consortia which will run these centres", he added.

The Delhi Centre where an "accelerator" was being established would concentrate on Nuclear Science and the Pune Centre on Astronomy and Astro-physics. A third centre was also planned at Indore where it could utilise the large electron synchotron being erected by the Centre for advanced technology (CAT).

Kakatiya Offers New Courses

The Academic Senate of the Kakatiya University has approved the introduction of new courses from 1989-90 under its School of Continuing Education. The courses include Bachelor Degree Course in General Law; Contact-cum-Correspondence Programme for P.G. (External) Examinations: P.G. Diploma in Rural Banking and Co-operation: Certificate Course in Library and Information Sciences; Bachelor Course in Library and Information Sciences; Correspondence-cum-Contact Course leading to B. Ed., etc.

Agricultural Fellowship Rates Revised

The government is reported to have recently announced revision of fellowship rates for various categories of research fellows engaged in agricultural research. The new rates take effect from April, 1989.

The junior research fellowship has been revised to Rs. 1,200 per month and senior fellowship to Rs. 1,500 for the first two years and Rs. 1,750 for subsequent years.

Research associates, master's degree holders. have been fixed in the scale of Rs. 2700-100-3200 and Ph.D. degree holders in the scale of Rs. 3200-100-3700.

The contingent grant available with fellowships has also been raised from Rs. 2,000 to Rs. 3,000 per year.

News from Agril. Varsities

Vice-Chancellors for Collaborative Projects

Dr. S. Jayaraj, Vice-Chancellor of Tamil Nadu Agricultural University and Dr. A. Gnanam, Vice-Chancellor of Madras University agreed on institutionalisation of sharing infrastructural facilities for research and computerisation of data for developing prediction models on rainfall, pest and diseases outbreaks, etc. at an informal meeting held in Coimbator recently.

Dr. Gnanam evinced keen interest in researches related to drought tolerance in crop varieties. Appreciating the existing strong bond of linkages between Agricul-ural University and state develop-nent departments, Dr. Gnanam emphasised on plant biotechnology programmes, sound genetics engineering and possibilities of combating plant diseases and pests hrough biotechnology.

Dr. Jayaraj suggested that the alents of scientists in basic esearches could be utilised and terchanged by way of accommoda-ng them in research scholars lvisory committees.

The management of industrial effluents, their effect on soil health, fodder and animals also figured in the meeting. The other important aspects discussed were plant anti-viral principles, physiological approaches to tree crops, ecological stress, potentiality of tissue culture methods, etc.

Lauding Tamil Nadu Agricultural University's contribution on biofertilisers research by way of identifying specific strains for different crops and soils, the Vice-Chancellor of Madras University felt the need for collaborative attempts in mission-oriented basic research and time-framed programmes. Rural development aspects also figured and called for closer interaction. Such new ventures would not only facilitate the teachers and researchers of both universities but the society at large to a great extent.

Revamping Millets Research

The millet scientists from all over the Tamil Nadu State attended a workshop recently organised by the Tamil Nadu Agricultural University, Coimbatore to review the present millet production and deliberate over the future research strategies required and thrust areas to be tackled in the coming years.

Presiding over the Workshop, Dr. S. Jayaraj, Vice-Chancellor, emphasised that millets along with tree crops was the best combination to combat drought conditions as well as to overcome the fodder shortage for animals. He called upon the scientists to promote millet production in the potential belts to match the poultry production and the Animal Nutritionists to identify nutritive fodders.

The choice of millet crop, specific varieties and cropping system should be based on the rainfall pattern specific to the region. Disclosing the massive fabrication of farm machinery in the University workshops for supply to all the Regional Research Stations and Krishi Vigyan Kendras in Tamil Nadu, the Vice-Chancellor categorically stated that the appropriate farm implements and machinery should form an integral part of dryland technology in Tamil Nadu.

Taking econometrics to the practical ladder of predicting the probabilities of dry spell, monsoon, soil moisture, pest and disease outbreaks, yield predictions and many more farm related aspects, the computerisation of farm research data is now well within the reach of Tamil Nadu Agricultural University which has got a we equipped computer centre. Dr. Jayaraj called upon the participating scientists to develop appropriate models to be test verified in different agro-climatic conditions in the state in farmers fields through on-farm trials.

Dr. S. Chelliah, Director of Research, Tamil Nadu Agricultural University, emphasised the need for intensive researches on intercropping giving region specific recommendations which in turn give additional income to the farmers. He advocated exotic breeding programmes in cholam and cumbu.

After two days of deliberations, the following thrust areas in millet research were identified for implementation in different parts of Tamil Nadu :

(1) Computerisation of research data available on all major millet crops, and development of prediction models for rainfall and pest and disease outbreaks. Integrated watershed management in low rainfall areas in Tamil Nadu.

(2) Cataloguing of the available male sterile lines in sorghum (cholam), maize and pearl millet (cumbu) for evolving high yielding and pest and disease resistant hybrids.

(3) Evolution of sweet sorghum varieties suitable for production of industrial ethanol (alcohol).

(4) Breeding drought tolerant and high yielding varieties Makkattai cholam suited to Tiruchi and Pudukottai district, Periamanjal cholam for Coimbatore and Periyar districts and Thalaivirichan cholam for North Arcot and Dharmapuri districts under rainfed conditions.

(5) Pearl millet (cumbu) hybrids and varieties suitable for intercropping in groundnut.

(6) Evolution of high yielding and drought tolerant minor millets like Tenai, Panivaragu, Samai and kudiraivali for the plains and hilly tribal areas.

(7) Study on the performance of millets in soils irrigated with leather tannery effluents in Palas Basin in North Arcot district and ameliorative measures to mitigate the ill-effects.

(8) Efficiency of bio-fertilizers in the integrated nutrient management, on the incidence of the diseases and pests of millets and ability to withstand drought.

(9) Tissue culture studies to evolve better varieties to combat blast disease in Ragi and downy mildew in cumbu.

News from Abroad

World's Biggest Library

France's President Francois Mitterrand has recently announced the construction in France of a library which might become the biggest and most modern library in the world. The estimated cost of this project would be 160 million US dollars. Likely to come up in 4-5 years time this library will be linked to all the important universities of Europe.

This library, according to the President, would 'take into account all knowledge in the world in all the branches', and mostly 'cater it to those who are doing research, those who study and those who want to learn.

The huge french library would thus compete with the biggest libraries in the world, be it Soviet Union like Moscow's Lenin Library (more than 25 million books) or Leningrad Library (21.5 millions), or America like that of the Congress in Washington (20 millions).

Testator Research University is Illegal

The University Grants Commission has asked the State Government of Tamil Nadu to take legal action against a self-styled university, the Testator Research University which is functioning at 50-A Sunderval Nagar, Bodinayakanur-626513, Tamil Nadu.

The so-called Testator Research University which is not established under a Central or State Act and is therefore not entitled to associate the word "University" with its name.

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertation as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

thematics

1. Garg, Usha. *Prolongations of valuations to transcen-tal extensions.* Panjab. Dr. Sudesh Kaur, Department of thematics, Panjab University, Chandigarh.

sics

1. Goswamy, Jatinder Kumar. *Nuclear structure studies g gamma-ray and electron spectroscopy.* Panjab. Dr. . Trehan, and Dr. Nirmal Singh, Department of Physics, jab University, Chandigarh.

2. Madhavan, Santosh. *Investigation of properties of films.* Kerala. Dr. V. Unnikrishnan Nair, Prof. Depart-t of Physics, University of Kerala, Trivandrum.

3. Pandey, Chitranjan Kumar. *Studies on biomolecules.* U. Dr. P.C. Mishra, Reader, Department of Physics, aras Hindu University, Varanasi.

mistry

. Amma, M.L. Geetha Kumari. *Contribution to the mistry of nitrogen-sulphur heterocycles.* Kerala. Dr. C.P. ua, Prof. and Head, Department of Chemistry, University erala, Trivandrum.

. Dhar, Novneet Sagar. *Thermodynamics of some selected alkylbenzene and alkane mixtures.* Panjab. Prof. D.V.S. Jain, Department of Chemistry, Panjab University, Chandigarh.

3. Ghaderian, Taghi. *Studies on structure activity relationship of some tertiary amine adducts of some meta salicylhydroxamates.* Devi Ahilya. Dr. P.V. Khadikar, Prof. and Head, School of Chemistry, Devi Ahilya Vishwavidyalaya, Indore.

4. Kalra, Tripat Pal Kaur. *Chemistry of some phosphatriazenes.* Panjab. Prof. S.K. Vasisht, Department of Chemistry, Panjab University, Chandigarh.

5. Kunju, A. Salahudeen. *Studies on the adsorption of solutes on solids : Extension of Harkins-Jura theory.* Kerala. Dr. K.P. Dharmaraja Iyer, Prof., Department of Chemistry, University College, Trivandrum.

6. Rajinder Kaur. *Sythesis and characterization of some heteropolycyclic compounds.* Panjab. Prof. H.K. Gakhar, Department of Chemistry, Panjab University, Chandigarh.

7. Singh, Abha. *Phytochemical studies on glycosidic principles of Crotalaria plants.* HS Gour. Dr. R.N. Yadav, Department of Chemistry, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

8. Sukumaran, P. *Synthesis of some thieno (2, 3-d) pyrimidine derivatives.* Kerala. Dr. C.P. Joshua, Prof. and Head, Department of Chemistry, University of Kerala, Trivandrum.

9. Thakur, Beli Ram. *Interactions of sorbic acid in foods.* Panjab. Prof. I.R. Trehan, Department of Chemistry, Panjab University, Chandigarh and Dr. S.S. Arya, DFRI, Mysore.

Engineering & Technology

1. Dey, Ashis Kumar. *Rock mechanics and ground control.* BHU. Dr. R. Nath, Department of Mining Engineering, Institute of Technology, Banaras Hindu University, Varanasi.

2. Handiakar, Namrata. *Stability of flow of fluids through porous media.* Devi Ahilya. Dr. S.K. Jain, Reader, Department of Mathematics, Shri G.S. Institute of Technology and Science, Indore.

BIOLOGICAL SCIENCES

Biochemistry

1. Gupta, Meenakshi. *Biochemical studies on the effect of carbamylating agents on eucaryotes and procaryotes.* Panjab. Dr. M.K.P. Amma, Department of Biochemistry, Prof. K.G. Gupta, Department of Microbiology, and Prof. H.M. Dani, Department of Biochemistry, Panjab University, Chandigarh.

2. Gurjit Kaur. *Comparative studies on metal binding proteins from normal human and monkey testes.* Panjab. Prof. R. Nath, Department of Biochemistry, Postgraduate Institute of Medical Education and Research, Chandigarh and Dr. G S. Gupta, Department of Biophysics, Panjab University, Chandigarh.

3. Melge, N.J. *Studies on trace elements in health and disease with special reference to different types of diabetes mellitus.* Shivaji. Dr. S.K. Ahaley, Reader, Department of Biochemistry, Government Medical College, Miraj, District Sangli.

4. Raul, P.A. *Studies on trace elements in health and disease with special reference to different types of carcinomas.* Shivaji. Dr. S.K. Ahaley, Reader, Department of Biochemistry, Govt. Medical College, Miraj, District Sangli.

5. Ravinder Singh. *Biochemical studies on carcinogenicity of environmental pollutants.* Panjab. Prof. H.M. Dani, Department of Biochemistry, Panjab University, Chandigarh.

6. Vinod Rattan. *Biochemical studies on calcium and oxalate metabolism in magnesium deficient rats with special reference to urolithiasis.* Panjab. Dr. R.K. Jethi, Department of Biochemistry, Panjab University, Chandigarh and Dr. (Mrs. S.K. Thind, Assoc. Prof., Department of Biochemistry, Postgraduate Institute of Medical Education and Research, Chandigarh.

Microbiology

1. Gupta, Jaya. *Isolation, mutation and characterization of some strains of Bacilius thuringiensis for their toxicity studies on insects.* Panjab. Dr. J.K. Gupta, Prof. and Chairman, Department of Microbiology, and Prof. H.R. Pajni, Department of Zoology, Panjab Univerrity, Chandigarh.

2. Mehta, Vibha. *Biobleaching of kraft pulp fron some Indian trees and grasses and biocolour removal of effluents using white rot fungus, Phanerochaetse chrysosporium or other soil isolates.* Panjab. Dr. J.K. Gupta, Prof. and Chairman, Department of Microbiology, Panjab University, Chandigarh.

Botany

1. Joshi, O.P. *Evaluation of air-pollution damage due to SO_2.* Devi Ahilya. Dr. K. Panwar, Asstt Prof., Department of Botany, Holkar Science College, Indore.

2. Talwar, Manju Bala. *Growth and development of plants.* Delhi. Dr. A. Rashid, Department of Botany, University of Delhi, Delhi.

3. Vyas, Deepak. *Photoproduction of hydrogen by Cyanobacteria.* BHU. Prof. H.D. Kumar, Department of Botany, Banaras Hindu University, Varanasi,

Zoology

1. Ghezta, Rajesh Kumar. *Ecology of Chandigarh ponds.* Panjab. Dr. Rajinder Jindal, and Prof. H.S. Vasisht, Department of Zoology, Panjab University, Chandigarh.

2. Gill, Manmeet Kaur. *Studies on various biological aspects of H_2 receptor antagonists, cimetidine and ranitidine in mice, Mus musculus.* Panjab. Dr. M.L. Sareen, Department of Zoology, Panjab University, Chandigarh.

3. Jayakrishnan, T.N. *Studies on certain aspects of ethology of common house rat, Rattus rattus.* Kerala. Dr. K M. Alexander, Prof. and Head, Department of Zoology, University of Kerala, Trivandrum.

4. Joseph, M.L. *Ecology and biology of sasthamcotta lake with reference to pollution.* Kerala. Dr. V.R. Prakasam Department of Zoology, F.M.N. College, Quilon.

5. Martin, Paul. *Ecology of Ashtamudi estuary with reference to biology of clams.* Kerala. Dr. V.R. Prakasam, Department of Zoology, F.M.N. College, Quilon.

6. Mukherjee, Ashim. *Expression of oncogenis in normal development and in deletion mutants of D. melanogaster.* BHU. Dr. J.K. Roy, Department of Zoology, Banaras Hindu University, Varanasi.

7. Pius, Johnson. *Studies on scales and skin in fishes.* Kerala. Dr. V.R. Prakasam, Department of Zoology, F.M.N. College, Quilon.

8. Poonam. *Studies on anorexia due to Zn-deficiency* Panjab. Dr. S.K. Taneja, Reader, Department of Zoology, Panjab University, Chandigarh.

9. Samban, Suchitra. *Studies on certain aspects of ethology of South Indian gerbil, Tatera indica cuvieri.* Kerala. Dr. K.M. Alexander, Department of Zoology, University of Kerala, Trivandrum.

10. Sharma, Virinder. *Ecology and conservation of peasants in Shimla Hills, Himachal Pradesh.* Panjab. Prof. S. Khera, Department of Zoology, Panjab University, Chandigarh.

Medical Sciences

1. Bharadwaj, Shukdeo Dubey. *Some fertility models and their use.* BHU. Dr. R.N. Mishra, Department of Preventive and Social Medicine, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

2. Mishra, Umapati. *Kashyapokta medhya vanaspation ka adhyayan.* BHU. Dr. Chandan Chaturvedi, Reader, Prof. J.K. Ojha and Dr. Ramesh Datta Sharma, Department of Prasuti Tantra, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

3. Mohammad Ayub. *Clinicopathological studies to evaluate the possible cause of Fourniers gangrene.* BHU. Prof S.K. Roy, Department of Surgery, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

4. Pankaj Mohan. *Study of prognostic factors in breast cancer.* BHU. Prof. N.N. Khanna, Department of Surgery, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

5. Singh, Ajay Shankar. *Socio demographic correlation nd fertility differential and F P. programme for its acceptance.* HU. Dr. R.N. Mishra, Department of Preventive and ocial Medicine, Institute of Medical Sciences, Banaras Hindu Iniversity, Varanasi.

6. Srivastava, Prabhat Kumar. *A study on the assessment f F.P. programme.* BHU. Dr. R.N Mishra, Department of Preventive and Social Medicine, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

Agriculture

1. Hema, M L. *Effect of various herbicides on cropweed association, growth yield and quality of soybean under varying fertility levels and row width.* Devi Ahilya. Dr. M S, Gujral, Principal, Government Girls College, Barwani.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Barik, Nanigopal. *Some problems of special functions.* Calcutta.

2. Bhatt, N. *Theory of some distributional and conventional integral transforms.*- Kumaun. Dr. J.M.C. Joshi, Pithoragarh.

3. Dheena, P. *A study of left bipotent near rings, strongly egular near rings and their generalisations.* Annamalai.

4. Gupta, Rajni. *A stndy of generalized fractional operaors and multivariable special functions with applications.* Rajasthan. Dr. S.P. Goyal, Department of Mathematics, University of Rajasthan, Jaipur.

5. Kesari, Premlata. *Some problems on propagation of lastic waves.* ISM, Dhanbad. Dr. B.K. Rajhans, Department of Applied Science, Indian School of Mines, Dhanbad.

6. Nath, Rabindra Kumar. *Certain investigations on integrals of perron and denjoy type.* NBU.

7. Parvathy, C.P. *Thermohaline convection in an anisotopic porous medium.* Anna.

8. Ranjit Singh. *On symmetry and the directed divergence information theory.* Delhi.

9. Sankaran, V. *Studies on similar vertices and diameters spanning trees of a graph.* Anna.

10. Singh, Ningombam Ibotombi. *Some physical distritions in cosmological models.* Manipur. Dr. R.K. Taraand Singh, Assoc. Prof, Department of Mathematics, anipur University, Imphal

11. Vankatachalam, C.V. *Some studies in graph theory : n some new parameters of a graph.* Karnatak. Dr. E. mpathkumarachar, Prof., Department of Mathematics, arnatak University, Dharwad.

atistics

1. Gopala Rao, M. *Contributions to the asymptotic rmality of pure and mixed rank statistics.* Osmania.

2. Kane, Siddharthavinayaka Padmakar. *A study of some ects of secretary problem and stopping rules* Nagpur. Dr. N. Deshpande, Government Institute of Science, Aurangad.

sics

. Barathan, S. *Magnetic and mass power studies of some aeological materials of Tamil Nadu.* Annamalai.

2. Basu, Anuradha. *Nuclear reactions studies on the neutrons.* Calcutta.

3. Batra, Nareshkumar Manharlal. *Crystallization and properties of calcium molybdate.* Patel. Dr. S K. Arora, Reader, Department of Physics, Sardar Patel University, Vallabh Vidyanagar.

4. Datt, Surjit Singh. *Study of energy dissipation and nuclear de-excitation mechanism via exclusive measurements of neutron multiplicity distributions.* Panjab.

5. Dhar, Ajay. *Electrical and optical properties of unreduced and reduced lithium niobate single crystals.* Delhi.

6. Durai, L. *Electrocrystallization kinetics of elemental, II-VI and I-III-VI_2 compound semiconductors and electrowinning of polycrystalline silicon.* Anna.

7. Gantait, Madhusudan. *Investigations on the electrical and optical properties of arc plasma.* NBU.

8. Kannappan, A.N. *Studies in molecular force fields of some polyatomic molecules and ions.* Annamalai.

9. Krishnan, T. *Frequency dependent properties of As_2Sc_3 based chalcogenide glasses and some chalcopyrite glasses.* Panjab.

10. Mahto, Parmanand. *X-ray absorption studies of some systems.* ISM. Prof. A.R. Chetal, Department of Applied Science, Indian School of Mines, Dhanbad.

11. Pal, Ajit Kr. *Crystal and molecular structure and analysis of some heterocyclic organic compounds using X-ray, diffraction technique.* Calcutta.

12. Pandya, H.N. *Study of magnetic and electrical behaviour of ferrite systems.* Saurashtra. Dr. R.G. Kulkarni, Prof. and Head, Department of Physics, Saurashtra University, Rajkot.

13. Ramamurthy, S. *Geomagnetic studies on Kanjamalai and Sithampondi rock formations.* Annamalai.

14. Raychaudhuri, Kalachand. *Study of dielectric properties and phase transitions in some molecular systems.* Calcutta.

15. Sankar, S *High pressure bandstructures and electronic properties of rare earths, Pr and Yb.* Madras.

16. Sekar, G. *IR and Raman investigations of certain phosphate and sulphate crystals.* Kerala. Dr. G. Aruldhas, Prof., Department of Physics, University of Kerala, Trivandrum.

17. Sengupta, Asmita. *Defect studies in III-V compounds, semiconductors, alkali halides and other application oriented materials using the position annihilation technique.* Calcutta.

18. Sengupta, Parthasarathi. *Some studies on controls at card on the physical properties of jute, silver and yarn.* Calcutta,

19. Singh, Sanasam Braiamani. *Studies in the dynamics of some physical systems.* Manipur. Dr. C. Amuba Singh, Assoc Prof., Department of Physics, Manipur University, Imphal.

20. Sivaraman, C. *Elastic properties of some cubic crystals.* Osmania.

21. Thamarai R. *Vibrational analysis of some polyatomic molecules.* Madras.

22. Victor Jaya, N. *High pressure studies of quasicrystals and superconducting compounds.* Anna.

Chemistry

1. Anil Kumar. *Long acting anticancer compounds derived from thiophene and dialkyl sulphides and computer assisted drug design studies.* Osmania.

2. Babu, J. *A study of the expansion of the valence shell of sulphur in some organic compounds by kinetic measurements.* Anna.

3. Bhadra, Alpana. *Studies on the chemistry of lower valent rhenium.* Calcutta.

4. Das, Bimalendu. *Some contributions to oxo-fluoro, and peroxo chemistry of boron and titanium.* NEHU. Prof. M.K. Chaudhury, Department of Chemistry, North Eastern Hill University, Shillong.

5. Dhupe, Anita Prabhakar. *Studies in gas-solid reactions.* Nagpur. Dr. L.K. Doraiswamy, Director, National Chemical Laboratory, Pune.

6. Jacob, E.M. *Effect of electrolyte on the aqueous solvolysis of some simle alkyl halides and sulphonates.* Kerala. Prof. R. Anantaraman, Department of Chemistry, University of Kerala, Trivandrum.

7. Joshi, H.S. *Studies on heterocyclic compounds.* Saurashtra. Dr. A.R. Parikh, Prof. and Head, Department of Chemistry, Saurashtra University, Rajkot.

8. Khare, Anand Bhushan. *Study of transition metal complexes with selected nitrogen/sulphur donor ligands and their biological applications.* HS Gour. Dr. O.P. Srivastava, Reader, and Dr. R.K. Gautam, Reader, Department of Chemistry, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

9. Krishnamoorthy, N. *A study of alkylation of neyveli lignite.* Anna.

10 Malayil, Koshykunju. *Thermal annealing and thermal decomposition of irradiated inorganic salts.* Calicut. Dr. S Madhavan Kutty Nair, Prof., Department of Chemistry, University of Calicut, Calicut.

11. Minakshi Devi. *Studies on fluoro, mixed fluro and acetylacetonate complexes of cobalt and copper (II) and peroxo-complexes of copper (II).* NEHU. Prof, M.K. Choudhury, Department of Chemistry, North Eastern Hill University, Shillong.

12. Mirza, Shaukat Ali. *Metal catalyzed oxidation of organic substrates by molecular oxygen.* Bhavnagar. Dr. M.M. Taqui Khan.

13. Mukhopadhyay, Bhanuprasad. *A study on the molecular structure of a few adrenergic drug molecules by X-ray crystallographic methods.* Calcutta.

14. Narasimha Rao, M. *Studies on the chelating tende cies of 3-hydroxy-4-pyrones in the presence of some N-N, N- and O-O donors.* Osmania.

15. Patel, Jayesh Prabhudas. ***Synthesis, characterizati and evaluation of potentially mesogenic polymers.*** Baroda.

16. Patel, Sureshbhai Gokalbhai. ***Ternary complex involving some bonding and tridentate ligands.*** Baroda.

17. Ray, Sumita. *Novel products from **Bischler-Napi alski reaction : Synthesis of 3,3 spirocyclic indolines** st turally related to indole alkaloids.* Calcutta.

18. Sangita Rani. ***Synthesis of insect sex-pheromones related systems.*** Panjab.

19. Sharma, Chhemendra. *Ultrasonic study of the sol tions of tetraalkyl-ammonium and alkali metal iodides in no aqueous polar solvents of medium and high dielectric consta* Dayalbagh. Dr. Pankaj, Lecturer, Department of Chemist Dayalbagh Educational Institute, Dayalbagh, Agra.

20. Tiwari, Premshankar. ***Kinetics of oxidation weotrocyclic aminoacids by quinquevalent vanadium in a medium.*** Awadhesh Pratap. Dr. V.K. Sharma, Prof., Dep ment of Chemistry, Government Adarsh Science Coll Rewa, M.P.

21. Velayutham, K. *Studies in debromination of substi ted phenyl styryl ketone dibromides with iodide ion and w thioureas.* Madras.

22. Venkata Narasaiah, A. *Transition metal chelates some new tri and tetradentate ligands.* Osmania.

Engineering & Technology

1. Arunachalam, S. *Optimization of transmission l towers.* Anna.

2. Gopalasubramanian, S. *An innovative technique surface treatment of tungsten carbide turning inserts w aluminium oxide and metallurgical and cutting wear investi tions on them.* Madras.

Earth Sciences

1. Borikar, Madhukar Ramchandra. *Petrology, petroc mistry and structural peculiarities of deccan traps of Ward Valley around Mowar, Nagpur District, Maharashtra S* Nagpur. Shri N K. Mohobey, Reader, Department Geology, Nagpur University, Nagpur.

2. Mehta, Ram Shanker. *Economic evaluation of Na Hill bauxite and its genesis.* Durgawati. Dr. P.S. Agai Prof. and Head, Department of Geology, Government Sci College, Jabalpur.

3. Nainwal, Dinesh Chandra. *Geology and tectoni upper Yamuna Valley, District Uttar Kashi, Garawal Himal U P.* Delhi.

4. Vijaya Bhaskara Reddy, Udumula. *Geochemical inve gations on Kanigiri granite with special reference columbite-tantalite of Prakasam District, A.P., India.* Osma

EDUCATION NEWS INDEX

A List of Select Articles and Editorials on Education from Newspapers Received in the AIU Library during March, 1989.

EDUCATIONAL PHILOSOPHY

Shamsuddin. University education today. *National Herald* 28.3.89.

EDUCATIONAL PSYCHOLOGY

Chandrasekhar, A. Reciprocal home-school relations. *The Hindu* 7.3.89.

Ramakrishnan, Jaishri. Overcoming aversion for numbers. *The Hindu* 28 3.89.

EDUCATIONAL SOCIOLOGY

Ahmad, Suhail. Education : Where women lag behind. *The Hindu* 28.3.89.

Altbach, Philip. Scourage of racism on U.S. campuses. *The Times of India.* 11.3.89.

EDUCATIONAL PSYCHOLOGY

Sahu, Susanta Kumar. Towards better understanding between teachers and parents. *Amrita Bazar Patrika* 7.3.89.

EDUCATIONAL POLICY AND PLANNING

NEGLECT OF EDUCATION (*Editorial*) *Deccan Herald* 22.3.89.

EDUCATIONAL ADMINISTRATION

Abel, M. Affiliating varsities : Search for new alternatives. *The Hindu* 14.3.89.

Amrik Singh. Governance of universities *The Tribune* 15.3.89.

Amrik Singh. Higher education : A missing mechanism. *The Times of India* 25.3.89.

Amrik Singh. Postal B.Ed : Curious UGC stance. *The Hindustan Times* 28.3.89.

Bordoloi, Utpal. Furore over site of new central varsity, *Deccan Herald* 21.3.89.

Dutta, Arup Kumar. Central University : A contentious issue. *The Assam Tribune* 4.3.89.

Mitra, Ashok. Let the universities be free. *The Telegraph* 8.3.89.

POPULIST, NOT PRACTICAL (*Editorial*) *Amrita Bazar Patrika* 6.3.89.

EDUCATION AND POLITICS

A GOVERNOR IN TROUBLE (*Editorial*) *The Tribune* 15.3.89.

Mitra, Ashok. Governors as varsity chancellors : Time to amend rules. *Deccan Herald* 9.3.89.

CURRICULUM

Subramaniam, M.J. How cartography helps in the planning process. *The Hindu* 7.3.89.

SCIENCE EDUCATION

THE AGENDA FOR SCIENCE EDUCATION. (*Editorial*) *The Hindu* 30.3.89.

SCIENCE EDUCATION-THE DISTRESS SIGNAL. (*Editorial*) *The Hindu* 4.3.89.

VOCATIONAL EDUCATION

Chhuttani, P.N. Medical education and nuclear war-I & II. *The Tribune* 12.3.89 & 19.3.89.

Venkatagiri Gowda, K. Improving medical education. *Indian Express* 20.3.89.

DISTANCE EDUCATION

Ghosh, Arup. C'wealth of learning created. *The Hindustan Times* 12.3.89.

TEACHERS & TRAINING

CM'S OFFER TO TEACHERS. (*Editorial*) *The Indian Nation* 20.3.89.

Dhar, Dipannita. Learning Sanskrit made simple. *Amrita Bazar Patrika* 7-3.89.

END TEACHERS' STRIKE. (*Editorial*) *The Indian Nation* 27.3 89.

Pillai, K. Sivadasan. Pedagogic training for college teachers. *The Hindu* 14.3.89.

TEACHERS' TRAVAILS. (*Editorial*) *Free Press Journal* 25.3.89.

Vasant Kumar, C. Teaching regression. *Deccan Chronicle* 2.3.89.

EDUCATIONAL RESEARCH

King, Jonathan. Biomedical research for military use, *The Indian Nation* 30.3.89.

EDUCATIONAL TECHNOLOGY

Murthy, S. S. Information technology-revolutionary changes. *The Indian Nation* 12.3.89.

Saksena, Gopal—TV and new education policy. *National Herald* 14.3.89.

Shankar, M.K. And now artificial intellegence. *National Herald* 17.3.89.

EDUCATIONAL EVALUATION

Shamsuddin, Reforming our examination system. *National Herald* 2.3.89.

ECONOMICS OF EDUCATION

Sain, Inder. 41% educated is not enough. *The Tribune* 9.3.89.

Singh, S.D. The job and degree nexus, *The Tribune* 12.3.89.

Zaman, A.E.Md.K. Private tuition and its remedies. *The Assam Tribune* 7.3.89.

LIBRARIES & BOOKS

Abraham, Abu. Satanic Versus. *The Hindustan Times* 5.3.89.

AN UNNECESSARY BANDH. (*Editorial*) *The Telegraph* 13.3.89.

BOOK-BANNING AGAIN. (*Editorial*) *Deccan Herald* 30.3.89.

Duggal, K.S. Freedom and the writer. *National Herald* 8.3.89.

Haq, Nomanul. Salman Rushdie : Blame yourself. *The Telegraph* 11.3.89.

IRAN AND THE USSR (*Editorial*) *The Pioneer* 2.3.89.

Jansen, G.H. Rushdie : The impact on the Arab World. *The Times of India*. 9,3.89.

Khushwant Singh. Who's afraid of Salman Rushdie ? *Indian Express* 12.3.89.

Kidwai, Anser. The storm over Rushdie. *National Herald* 15.3.89.

Lusting, Robin. Satanic Versus : A clash of faiths. *Amrita Bazar Patrika* 4.3.89.

Martin, Paul. Spurn the book, spare the man. *National Herald* 6.3.89.

Menon, N.C. Acid pen and avenging sword. *The Hindustan Times* 4.3.89.

Mitra, Ashok. The dans macabre in Iran : The double standards of the west. *The Times of India* 6.3.89.

MR. RUSHDIE & REALITY (*Editorial*) *The Statesman* 12.3.89.

Narayana, V.N. Don't tear him for bad verses. *The Tribune* 15.3.89.

Nariman, F.S. Freedom of speech and blasphemy : The laws in India and U.K. *Indian Express* 13.3.89.

Raj Kishore. Rushdie and Khomeini : Two sides of the same coin. *The Telegraph* 15.3.89.

THE ROOT CAUSE (*Editorial*) *Indian Express* 4.3.89.

WAY OUT (*Editorial*) *Free Press Journal* 10.3,89.

Zaki, Yaqub. Why Muslims indict Rushdie. *The Statesman* 10.3.89.

STUDENTS AND STUDENT ACTIVITIES

Jayaraman, Viritha, Student uprising in Sri Lanka. *The Pioneer* 17.3.89.

STUDENTS IN REVOLT (*Editorial*) *Amrita Bazar Patrika* 5.3.89.

PHYSICAL EDUCATION & SPORTS

Hazarika. Prafulla. We need foreign coaches to raise standard. *The Assam Tribune* 12.3.89.

BIOGRAPHICAL PROFILES

Paddayya, K. Ceaseless quest for the unknown part (Prof. H D. Sankalia) *The Hindu* 19.3.89.

Seram, Kishore. A guru of the Gurukul tradition (Dr. Satyaketu Vidyalankar) *Patriot* 22.3.89.

GOKHALE INSTITUTE OF POLITICS AND ECONOMICS

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Applications invited for the posts of Professors, Readers, Lecturers, Research Associates in Economics and Assistant Librarian and Documentation Officer, all in the UGC pay-scales. Of these, one post each of Professor, Research Associate and Documentation Officer and possibly one post of Reader will be in the area of economics of East European Countries. Application forms may be obtained from the Registrar of the Institute by sending a Postal Order for Rs. 10/-. Preference to candidates belonging to Backward Class, Scheduled Castes/Tribes, other things being equal. Application form duly completed should reach Prof. V.S. Chitre, Director by 10th May, 1989.

UNIVERSITY OF HYDERABAD

P.O. Central University Hyderabad-500134

ADMISSION ANNOUNCEMENT 1989-90

The University will hold an Entrance Examination from 24th June to 29th June, 1989 for admission to various programmes of study.

SCHOOLS AND PROGRAMMES OF STUDY

1. School of Humanities

(i) M.A., M.Phil and Ph D. in English, Philosophy Hindi, Telugu, Urdu, (ii) M Phil. & Ph.D. in Applied Linguistics (Translation Theory & Practice), Comparative Literature; (iii) Diploma and certificate courses in Japanese and Chinese.

2. School of Social Sciences

M.A., M.Phil and Ph.D. in Economics, History, Political Science, Sociology and Anthropology.

3. School of Mathematics & Computer/Information Sciences

(a) Courses in Mathematics

M.Sc., M.Phil. In Mathematics, Applied Mathematics, Statistics, and Ph.D. in Mathematics.

(b) Courses in Computer/Information Sciences

(i) Master of Computer Applications (MCA) (6 sem.), (ii) Diploma in Computer Application (DCA) (2 sem.), (iii) M.Tech in Computer Science/Artificial Intelligence & Robotics (3 sem.), (iv) Ph.D. in Computer/Information Sciences.

4. School of Physics

(i) M.Sc., M.Phil. in Physics with Material Science, Modern Optics/Laser Physics, (ii) Ph.D. in Physics.

5. School of Chemistry

(i) M.Sc. Chemistry, M.Phil. in Chemistry, Chemical Education (for inservice candidates), (ii) Ph.D. in Chemistry.

6. School of Life Sciences

(i) M.Sc. in Life Sciences (Bio-Chemistry, Plant Sciences, Animal Sciences), (ii) M.Phil in Bio-Chemistry, Plant Sciences, Animal Sciences, (iii) Ph.D. n Life Sciences.

7. Sarojini Naidu School of Performing Arts, Fine Arts & Communication

- (i) Master's degree in Performing Arts (M.P.A. Dance)
- (ii) Master's degree in Performing Arts (M.P.A. Theatre Arts)
- (iii) Master's degree in Fine Arts (M.F.A. Painting) and
- (iv) M.A. in Communication (Audio-Visual Media).

ENTRANCE EXAMINATIONS

Admissions are made on all-India basis in order of merit taking into consideration past academic record and performance of the candidates at written/oral tests as prescribed in the Prospectus 1989-90.

(i) for M.A., M.Sc., M.C.A., D.C.A. & Diploma & Certificate Courses

The written examinations will be held from 24th June to 29th June 1989 at Hyderabad, Waltair, Vijayawada, Delhi, Bombay, Bangalore, Calcutta, Madras & Trivandrum (The University reserves the right to cancel any of these Centres if the number of eligible candidates is less than 100 at that Centre.

(ii) for M.Tech., M.Phil and Ph.D. Programmes

The written examinations and interviews will be held only at Hyderabad from 3rd to 6th July, 1989. Candidates attending the tests for these programmes will be eligible for reimbursement of II Class Railway fare as per rules detailed in the Prospectus 1989-90.

RESERVATION OF SEATS

15% an 7.5% of the seats in each course are reserved for SC and ST candidates respectively with provision for inter-changeability where necessary. Relaxation in the minimum percentage of marks required for admission is also provided. 3% of the seats in each course are reserved for the physically handicapped candidates. Weightage will be given to Sports persons and certain concessions to blind students as per UGC guidelines. For admission of foreign students, please refer to the relevant provisions in the Prospectus.

ELIGIBILITY

Detailed information regarding minimum qualifications and other requirements for various courses is given in the Prospectus 1989-90.

Candidates who have graduated under 10+2+2 system of education alone are eligible to apply. Candidates who have graduated under 10+2+2 system of education are also eligible to apply only if they have successfully completed one-year bridge course as per UGC guidelines.

Candidates whose results are awaited and also those who are due to appear for the final examination of the qualifying degree before the dates of the Entrance Examinations are also eligible. They must however submit the results of the final examination at the latest by 31st August, 1989, failing which their provisional admission, if granted, will actomatically stand cancelled.

HOW TO APPLY

Application form together with Prospectus 1989 containing detailed instructions including eligibility criteria for admission to each course/programme of study can be obtained :

(i) In Person, either from the Academic Section, in the Campus at Gachi Bowli, or from "The Golden Threshold" premises at Nampally Station Road, Hyderabad-500 001, against cash payment of Rs. 8/- for each set (one application and prospectus) (Rs. 2/- for each additional application form) from **20-4-1989**.

(ii) By Post : from The Deputy Registrar (Acad & Exams), University of Hyderabad, P.O. Central University, Hyderabad-500 134 by sending him (i) requisition, (ii) two self-addressed slips, (iii) Crossed Demand Draft drawn in favour of the Registrar, University of Hyderabad, on State Bank of India or on Andhra Bank or any nationalised Bank at Hyderabad for Rs. 10/- for a set of one application form and prospectus and Rs. 2/- for each additional application form.

Note : A separate application is required for each course. However, for the following courses one application for each set of courses (course as mentioned below) is sufficient :

(i) M.Sc. Maths (Applied Maths., Maths., Statistics); (ii) M.Sc. Life Sciences (Bio-chemistry, Plant Sciences, Animal Sciences); (iii) M.C.A. and D.C.A.; (iv) M.Tech. (Computer Science, Artificial Intelligence and Robotics); (v) **M.Phil.** Maths (Applied Maths., Maths., Statistics); (vi) M.Phil. in Physics, Modern Optics/Laser Physics; (vii) M Phil. in Chemistry, Chemical Education; (viii) M.Phil. in Bio-chemistry, **Plant Sciences, Animal Sciences.**

FINANCIAL ASSISTANCE AVAILABLE (FOR DETAILS REFER TO PROSPECTUS 1989-90)

Last date for receiving request for application by Post.	**10.5.1989**
Last date for receiving completed applications.	**20.5.1989**

The University will not be responsible for any postal delay.

P. Murali Krishna
Acting REGISTRAR

JOINT ADMISSION TO

THREE SEMESTER M. TECH. PROGRAMME : JULY 1989

(With Scholarship)

OF

INDIAN INSTITUTE OF TECHNOLOGY

BOMBAY, KHARAGPUR & MADRAS

INFORMATION BROCHURE, APPLICATION FORM, AND BASIC DATA-CUM-CHOICE SHEET can be obtained by sending :

(i) the application-cum-registration fee of Rs. 50/- by a crossed Bank Draft (only MICR draft will be acceptable for IIT, Bombay and IIT, Madras) in favour of the IIT to which the request is made, drawn on the State Bank of India of the same place;

(ii) a letter of request mentioning the details of the Bank Draft, and

(iii) two slips of size 5 cm x 10 cm indicating the applicant's postal address in capital letters to any of the following :

The Chairman, GATE
INDIAN INSTITUTE OF TECHNOLOGY
Bombay-400 076 or Kharagpur-721 302 or Madras-600 036

Issue of Application Forms commences on—April 18, 1989

LAST DATE for :

Issue of Application Forms—by Post	**—May 2, 1989**
at the Counter	**—May 11, 1989**
Receipt of completed applications	**—May 12, 1989**

For additional information, please refer to an earlier advertisement Dated 27-3-1989.

Sanjay Gandhi Post Graduate Institute of Medical Sciences

LUCKNOW

POST BOX NO. 375, RAE BARELI ROAD, LUCKNOW-226 001 (UP)

Advertisement No. 63/89

Closing Date : April 20, 1989

SENIOR RESIDENTS

Applications are invited for Selection of Senior Residents in the following specialities for Hospital Services & for ICMR Centre for Advanced Research in Behavioural Psychopharmacology.

	Speciality		Vacancies for Hospital Services
1.	Anaesthesiology		1
2.	Cardiology		1
3.	Cardiovascular Surgery		3
4.	Endocrinology (Medical)		2
5.	Gastroenterology (Medical)		2
6.	Gastroenterology (Surgical)		1
7.	Immunology		1
8.	Medical Genetics		1
9.	Nephrology		1
10.	Neurosurgery		1
11.	Neurology		3
12.	Pathology		3
13.	Radiology		3
14.	Transfusion Medicine		4
15.	Microbiology		2
			29
16.	ICMR Centre for Behavioural Psychopharmacology	Senior Resident 3 Research Fellow 1	4
		Total	33

Note : The Number of Vacancies indicated above may increase or decrease at the time of Recruitment.

Qualifications : For Senior Residents (Hospital Services)

(a) The applicants should possess M.D./M.S. or equivalent recognised postgraduate qualification in the parent discipline.

(b) The candidates must have registered with Central/State Medical Council.

For ICMR Centre for Behavioural Psycho-Pharmacology

Senior Residents : M.D. Psychiatry or M D. Pharmacology.

Research Fellows : M.Sc. Biochemistry.

Upper Age Limit : Maximum age as on 1-1-1989, 35 years. Relaxable by 5 years for Scheduled Caste & Scheduled Tribe candidates.

1. No candidate can apply for more than one speciality.
2. The recruitment to the posts will be made on All India Basis.
3. The emoluments to Senior Residents payable will be Rs. 3000-3100-3200 fixed including PGA & NPA respectively in first, second & third year. Other allowances excluding CCA may also be provided.
4. Emoluments to Research Fellows in ICMR Centre for Advanced Research for Behavioural Psycho-Pharmacology will be at present Rs. 1800/- per month fixed.
5. The appointments on these posts will be made on yearly basis for a term not exceeding 3 years.
6. Candidates will be selected strictly on merit determined on the basis of selection test which will consist of a written examination followed by practical/clinical test and interview.
7. The test will be held on May 21, 1989 (Sunday) at S.G.P.G.I. Lucknow.
8. The merit list will be valid for a period of one year.
9. Candidates are requested to send applications on plain paper latest by **20th April, 1989** stating their date of birth, qualifications with year of passing the examination and marks, experience, names of two referees alongwith a crossed Bank Draft of Rs. 200/- (two hundred only) payable to "Sanjay Gandhi Post Graduate Institute of Medical Sciences".
10. Candidates in employment must get their applications duly forwarded.

Prof. B.B. Sethi
DIRECTOR

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HOW TO APPLY

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5.	Gastroenterology (Medical)		2
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7.	Immunology		1
8.	Medical Genetics		1
9.	Nephrology		1
10.	Neurosurgery		1
11.	Neurology		3
12.	Pathology		3
13.	Radiology		3
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8. The merit list will be valid for a period of one year.
9. Candidates are requested to send applications on plain paper latest by **20th April, 1989** stating their date of birth, qualifications with year of passing the examination and marks, experience, names of two referees alongwith a crossed Bank Draft of Rs. 200/- (two hundred only) payable to "Sanjay Gandhi Post Graduate Institute of Medical Sciences".
10. Candidates in employment must get their applications duly forwarded.

Prof. B.B. Sethi
DIRECTOR

Tata Institute of Fundamental Research

HOMI BHABHA ROAD, BOMBAY-400005

ADVERTISEMENT NO. 8/89

Applications are invited for Research Scholarships in the School of Mathematics of the Institute from bright young students aspiring for a career of research in mathematics. The Institute provides facilities for active research in Pure Mathematics in an atmosphere of academic excellence.

Qualifications

A good Master's degree in Mathematics is required. However, B.Sc. degree-holders of exceptional merit will also be considered. Students who have just appeared for the relevant examination this year may also apply.

Final selection will be made on the basis of an interview to assess the aptitude for research.

Selected students will be paid an honorarium of Rs. 2200/- per month. The admission will be initially for a period of one year during which introductory courses on basic areas of mathematics will be given. The continuation of the research scholarships beyond one year **will depend on the assessment of the student's performance during the year.** A second assessment will be made at the end of the second year based on which the student may be offered a further extension of his scholarship at a possibly enhanced level or a Research position for 3-5 years. There are possibilities of research appointments at higher levels for outstanding students after completion of their Ph.D's.

Applications in the form of a resume giving the particulars listed below accompanied by attested copies of testmonials pertaining to the mathematical ability of the candidate from two teachers closely acquainted with the work of the candidate and a recent passport size photograph should reach the Administrative Officer (Establishment), Tata Institute of Fundamental Research, Homi Bhabha Road, Bombay 5 not later than **June 1, 1989.**

1. Name
2. Date and Place of Birth
3. Address
4. Nationality
5. Academic qualifications with year of passing, division/class and names of institutions attended, (Attested copies of mark lists should be enclosed).
6. Previous experience, if any, giving designation and the scale of pay, posts held, names and addresses of previous and present employers, number of years served, and present emoluments in chronological order.
7. Details of published research work, if any.

A candidate colled for interview will be paid 1-1/3 railway fares each way by the lowest class as also a sum of Rs. 35/- as halting allowance for the day on which he/she is interviewed. Applicants already in Govt. Semi-Govt. Public Sector Undertaking services must apply through proper channel. Only the candidates who are called for interview will be informed of the results and no correspondence of any kind will be entertained.

BANARAS HINDU UNIVERSITY

Advertisement No. 4/1988-89

Applications are invited for the undermentioned posts. The benefit of Provident Fund/Pension, Dearness Allowance, House Rent Allowance and City Compensatory Allowances are admissible according to University rules. The retirement age of the University Employees for teaching posts is 60 years and 58 years for non-teaching posts unless otherwise revised. The appointment will be made on one year probation on all permant posts Higher starting salary within the grade is admissible to specially qualified and experienced candidates.

Applications will be entertained on the prescribed form duly supported with a Bank Draft/Indian Postal Order/Overseas Postal Order of Rs. 10/- (of Rs. 2.50 for the candidates belonging to Scheduled Caste / Scheduled Tribes category) in favour of the Registrar, BHU towards application fee. Permanent employees of B.H.U. (including those on probation) are exempted from payment of application fee. Application form alongwith detailed qualifications will be supplied on receipt of crossed I.P.O./Bank Draft of Rs. 2/- in favour of the Registrar, B,H.U. and self addressed envelope of 23 cm × 10 cm size carrying stamps of Rs. 2.60. The University will not defray the travelling or other expenses of candidates called for interview but shall contribute actual Railway Fare by shortest route for second class plus reservation charges for sleeper and/or the actual Bus Fare from the candidates's normal place of residence in the case of candidates called for interview. Candidates from outside India shall be entitled to actual Railway fare by shortest route for second class plus reservation charges for sleeper and/or actual Bus Fare from the port of entry to the place of interview.

Application for each post be sent saparately alongwith attested copies of certificates and marksheets in support of the qualifications and experience mentioned in the application and be addressed to the Registrar (Selection Committee Section), Banaras Hindu University, Varanasi-221005, India.

Incomplete application in any respect will not be entertained for consideration. Those who are in service should apply through proper channel. Money Order or Cheque will not be accepted towards application fee.

Reservation : (1) A reservation of 15% in the case of Scheduled Caste and 7½% in the case of Scheduled Tribes will be made in the category of teaching posts upto the level of Lecturers only. (2) A reservation of 22½% (15% S.C. and 7½% S.T.) will be made in the category of non-teaching posts at entry level.

The last date for receipt of application in the Office of the Registrar (Selection Committee Section), Banaras Hindu University either by post or by hand will be May 15, 1989. Applications will be received by hand at the Counter from 10.30 hrs. to 14.30 hrs. on each working day till the last date. No application shall be entertained after the last date from external, in-service employees and the candidates residing abroad.

Note : 1. For Lecturer's posts where no specialisation is stipulated the number of vacancies may increase by the time the Selection Committee meets to interview candidates.

2. Those who have already applied timely for the posts shown at serial numbers 1,2, 11 to 15, 19,20,26,28, 30 to 32, 36, 40 and 41 need not apply again. They will be considered according to the qualifications to be sent with the application form. However, they may send 10 copies of their latest biodata for consideration.

Grade : **Professsor** — Rs. 4500-150-5700-200-7300.
Reader — Rs. 3700-5700.
Lecturer — Rs. 2200-75-2800-100-4000.

N.P.A. as per rules to Medical Graduates appointed in the Institute of Medical Sciences only,

Other Posts— As indicated against the posts.

INSTITUTE OF TECHNOLOGY

1. **Professor of Ceramic Engg. (One)** (Earlier Advt. No. 7/1986-87)

2. **Professor of Ceramic Engg. (Glass Technology)** (One) (Earlier Advt. No. 7/1986-87)

3. **Professor of System Engineering** (One) (Dept. of Electrical Engg.)

4. **Professor of Electrical Engineering** (Spl. in Electrical Machines and Drives/Electrical Power Systems/System Engg. and Control Systems) (ONE) (Under Special Assistance Programme—Dept. of Electrical Engg.)

5. **Reader in Electrical Engineering** (Electrical Measurement/Control Systems) (One)

6. **Lecturer in Metallurgical Engg.** (One) (**Reserved for S.C. Candidates**)

INSTITUTE OF MEDICAL SCIENCES

7. **Professor of Radiotherapy and Radiation Medicine** (One)

8. **Professor / Reader in Biophysical Chemistry** (One) (Under Special Assistance Programme—Dept. of Biochemistry)

9. **Professor/Reader in Immunology** (One) (Under Special Assistance Programme—Dept. of Biochemistry)

10. **Reader in Medicine** (Oncology) (One)

11. **Reader in Medicine** (Gastro-Enterology) (One) (Earlier Advertisement Nos. 11/1984-85, 8/1985-86 and 6/1986-87).

12. **Reader in Anatomy** (Cytogenetics) (One) (Earlier Advertisement Nos. 11/1984-85, 7/1985-86 and 6/1986-87)

13. **Reader in Surgery** (Urology) (One) (Earlier Advt. No. 7/1986-87)

14. **Lecturer in Medicine** (Endocrinology) (One) (Earlier Advt. No. 7/1986-87)

15. **Research Officer** (Neurophysiology Unit—Dept. of Physiology) (One) (Earlier Advt. No. 7/1986-87)

Grade : Rs. 700-1600 (Pre-revised)

INSTITUTE OF AGRICULTURAL SCIENCES

16. **Professor of Plant Physiology** (One)

17. **Reader in Agronomy** (One)

18. **Agro-Meteorologist** (One) (Under All India Co-ordinated Research Project on Agro-Meteorology—in association with Dryland Project)

Grade : Rs. 1200-1900 (pre-revised)

19 **Training Associate (Home Science) (TWO)** (Krishi Vigyan Kendra—University Farm at Barkachha Mirzapur) (Earlier Advt. Nos. 4/1985-86 and 2/1987-88.

Grade : Rs. 2200-4000.

FACULTY OF SCIENCE

20. **Professor of Zoology** (Spl. in Reproductive Physiology) (ONE) (Centre of Advanced Studies in Zoology) (Earlier Advt. No. 7/1986-87).

21. **Professor of Physics** (TWO)

22. **Lecturer in Physics** (One)

23. **Lecturer in Physical Chemistry** (One)

24. **Lecturer in Zoology** (One) (**Reserved for S.C. Candidates**)

FACULTY OF ARTS

25. Professor of Philosophy (One)

26. Professor of Library Science (One) (Earlier Advt. No. 7/1986-87)

27. Professor of Library & Information Science (Computer Application) (One)

28. Reader in Philosophy (One) (Mahila Mahavidyalaya) (Earlier Advt. No. 7/1986-87)

29. Reader in Philosophy (Spl. in Philosophy of Science) (One)

30. Reader in German (One) (Earlier Advt. Nos. 9/1984-85 and 2/1987-88)

31. Reader in Telugu (One) (Earlier Advt. No. 7/1986-87)

FACULTY OF SOCIAL SCIENCES

32. Reader in Sociology (One) (Earlier Advt. No. 7/1986-87)

33. Lecturer in History (One)

34. Research Officer (temporary for the period upto 31.3.1990) (One) (Centre for Women's Studies & Development).

Grade : Rs. 2200-4000.

SANSKRIT VIDYA DHARMA VIGYAN SANKAY

35. Reader in Jyotish (One)

36. Reader in Vyakaran (One) (Earlier Advt. No. 3/1985-86)

FACULTY OF PERFORMING ARTS

37. Professor of Instrumental Music/Vocal Music (One) (Mahila Mahavidyalaya)

38. Lecturer in Instrumental Music (Flute) (One)

39. Lecturer in Mridangam (Karnatak Music) (One) (Reserved for S.T. Candidates)

40. Lecturer in Karnatak Music (One) (Earlier Advt. Nos. 3/1984-85, 10/1985-86 and 11/1986-86), (Dept. of Vocal Music)

FACULTY OF VISUAL ARTS

41. Professor of Sculpture (One) (Earlier Advt. No. 7/1986-87)

42. Reader in Visual Arts (One) (Mahila Mahavidyalaya)

43. Lecturer in History of Arts (One)

BHARAT KALA BHAWAN

44. Director (One)

Grade : Rs. 1500-2500 (pre-revised)

UNIVERSITY EMPLOYEES HEALTH SERVICE SCHEME

45. Medical Officer (One)

Grade : Rs. 700-1600 (pre-revised).

46. Lady Medical Officer (Two)

Grade : Rs, 700-1600 (per revised)

THE GANDHIGRAM RURAL INSTITUTE

(Deemed University)

TECH-NET

(A project of Rural Technology Centre : Sponsors : DST & Government of India) :

1. **Programme Co-Ordinator : (Rs. 2000-2400 p.m.) (B.E. / B.Sc. (Agrl.) / M.Tech./M.A. (SW)/MBA**

2. **Communication In-Charge : (Rs. 1500-1800 p.m.) (B.A./B.Sc. (Agrl.)/M.A. (S.W.)**

3. **Field Organiser : (Rs. 750-1000 p.m.) (Diploma in Engg./B.E./M.A. (S.W.)**

ADULT EDUCATION

4. **Assistant Director : (Rs. 1200-1900 Pre-revised) (M.A./M.Sc. with minimum 55% of marks and M.Phil. or Ph.D. with minimum five years experience)**

POPULATION EDUCATION

5. **Assistant Director : (Rs. 1200-1900 pre-revised) (M.A./M.Sc. with 55% of marks and M.Phil. or Ph.D. with minimum 5 years of experience)**

IDARA FOR NYKS

6. **Programme Officer : (Rs. 900-1600 pre-revised (II Class Master's Degree with five years experience)**

Salaries will be refixed on the basis of qualification and experience. THE CANDIDATES THOSE DESIRING TO STAY AND WORK IN THE VILLAGES NEED APPLY FOR THE ITEM No. 1,2 & 3. The details relating to the qualifications prescribed for each post, the pay and the application forms can be had from the REGISTRAR, by enclosing a postal order for Rs. 15/- payable to the Registrar, Gandhigram Rural University, Gandhigram Post, Anna District, Tamil Nadu alongwith the self-addressed envelope affixing 1.50 palse stamp. The last date for receipt of the completed applications is 25th April 1989.

Dr. P.V. Subramanian
REGISTRAR

ADMISSION NOTICE

Applications are invited for admission to the Certificate Course in Folkloristics conducted at the Centre for Literary and Cultural Studies, North-Eastern Hill University.

The Course provides perspectives in the scientific study of folklore with exposure to concepts and methods and familiarises the students with the rich treasures of folklore materials of North-East India.

Duration — One semester from May 1989.

Eligibility— Any student who has a bachelor degree and has interest in folklore study may apply.

Classes will be held in the afternoon between 2 00 to 4.00 P.M.

Outstation applicants, if admitted. shall have to make their own arrangements for stay at Shillong.

Last date for applications—25th April, 1989.

Applications for admission to the Course in plain paper giving personal data (name, father/husband's name, date of birth, address etc.) and academic qualifications with copies of certificates should reach the undersigned by 25th April 1989.

Sd/-
Dr. Soumen Sen
Head, Centre for Literary
& Cultural Studies
North Eastern Hill University,
Mayurbhanj Complex, Nongthymmai
Shillong—793014

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16-10

University News

MONDAY, APRIL 17, 1989

Rs. 2.50

INDIAN SCHOOL OF MINES
ANNUAL CONVOCATION
1989

rom L to R: Shri A. Sarkar, Acting Registrar, Shri A.N. Haksar, Chairman, ISM Executive Board, Shri L.P. Shahi, Union Minister of State for Education & Culture, who delivered the convocation address and Prof. D.K. Sinha, Director, Indian School of Mines.

IS IT YOUR DREAM TO ESTABLISH YOUR OWN INDEPENDENT INDUSTRIAL UNIT ?

Science & Technology Entrepreneurship Park Roorkee is organising a 6 week entrepreneurship development programme for ambitious Science postgraduates and engineering graduates to train, assist, guide and appraise them on all aspects of entrepreneurship to enable them realise their Industrial dream.

If you are B.E. / M.Sc. / M. Tech. / M.E. degree holder or awaiting final year result or already in profession, you are eligible to apply. For further details please write to :-

Prof. M. P. Jain,
Director
Science and Technology Entrepreneurship Park Roorkee
Alternate Hydro Energy Centre, University of Roorkee,
Roorkee - 247667

Programme Commences on June 5, 1989

Last Date for Receipt of Application is 5th May, 1989

UNIVERSITY
NEWS

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1989
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Editor :
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Role Performance of Heads of Colleges in India

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The study "Role-Performance of Heads of Colleges", was taken up to investigate the roles of colleges' heads, their performance in respect of various roles, and factors related to their role performance. The objectives of the study were :

(i) to identify the roles of heads of colleges;
(ii) to explore the frequency of performance of different types of roles by the heads; and
(iii) to find the relationship of some factors with the role performance of the college heads.

Identification of Roles

The functions of heads of colleges, as perceived by them, the teachers and the students were gathered, specified and classified so as to identify the roles which heads of colleges are called upon to play. The functions thus identified were grouped under ten roles with the help of experts. The roles were labelled as follows :

(i) **Planner** : Activities related to overall planning, policy making, introduction of innovations, etc.;
(ii) **Office Manager** : Activities related to application of rules, processing of papers, maintenance of records, etc.;
(iii) **Resource Facilitator** : Activities in relation to selection, procurement, utilization and maintenance of physical, financial and human resources;
(iv) **Supervisor of the Instructional Programme** : Activities related to the smooth functioning of the teaching-learning process; Regularity of attendance, arrangement of special classes, etc.;
(v) **Promoter of Co-curricular Activities** : Initiating, motivating and encouraging co-curricular activities;
(vi) **Staff Evaluator and Motivator** : Activities relating to evaluation of the performance of the staff, and encouraging and motivating of staff and students;
(vii) **Mentor and Reconciliator** : Advising, mediating and resolving conflict and promoting healthy relationships;
(viii) **Academician and Teacher** : Activities related to the professional development of the Principal as an academician, teacher and scholar and researcher;
(ix) **Representative of the College** : Activities related to representing the college in outside agencies for example the universities; department of education; managing committee, development agencies, etc.; and
(x) **Bridge Building with the Community** : Activities related to the liaison role of the principal in developing linkages and goodwill with the community.

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A questionnaire consisting of 83 items was constructed on the basis of the functions under ten different roles. A try-out of the questionnaire was carried out which helped in revising the final form of the questionnaire and its response categories.

Sample and the Tools

A stratified random sample of 51 colleges out of 129 colleges in the National Capital Region of India (Delhi and adjoining regions) was selected for the purpose of the study. The sample included government and privately managed colleges : aided and unaided colleges as well as co-educational and women colleges. Apart from Principals of these colleges, the sample included 4-5 lecturers of each college.

The tools for this study comprised the Role-Performance Questionnaire (RPQ), mentioned above; Personal Data Questionnaire (PDQ), Cattel's 16 Personality Factor Questionnaire (PFQ), and Organizational Health Questionnaire (OHQ).

RPQ and DHQ were administered to lecturers of colleges while PDQ and PFQ were administered to the heads of colleges. The data, complete in all respects, was received from 28 colleges. It was analysed with the help of computer after formulating necessary tables.

The Findings

1. The most frequently performed role by the college head was found to be that of "Office Manager". The next most frequently performed roles were those of "Mentor and Reconciliator" and "Resource Facilitator". The roles connected with Academic Management get the last ranks on the frequency of their performance. The rank order according to the relative frequency of performance of the different roles is shown in Table 1.

Table 1

RANK ORDER OF ROLES

Sl. No.	Role	Rank
1.	Planner and Innovator	4.5
2.	Office Manager	1
3.	Resource Facilitator	5
4.	Supervisor of the Instructional Programme	6
5.	Promoter of Co-curricular Activities	4.5
6.	Staff Evaluator and Motivator	8
7.	Mentor and Reconciliator	2
8.	Academician and Teacher	10
9.	Representative of the College	7
10.	Bridge Builder with the Community	8

2. While comparing the perceptions of role-performance of the Heads by the teachers and the time spent by the Heads on each role, (See diagram) it was found that for the roles "Office Manager", "Resource Facilitator" and "Staff Evaluator and Motivator", there was relatively little difference between the perceptions of teachers and the Heads. On the other hand, for the roles "Planner and Innovator", "Supervisor of the Instructional Programme", "Academician and Teacher", and "Promotor of Co-curricular Activities", the Head reported spending a fairly large or considerable amount of time while the lecturers felt that the roles were not being performed very frequently.

3. Relationship of some personal variables with role performance was also studied. The variables were (1) Educational Qualifications; (2) Length of time on the job; (3) Experience of being Vice-Principal; (4) Professional in-service training; and (5) Present Age. No significant differences were found between Principals holding Ph.D. degrees and those not having a Ph.D., between Principals who had previousl been Vice-Principals and those directly appointed to this post; between Principals who had received some kind of professional training and those with no training. The age of the Principal, also was not found to be of any significance in the performance of any of the roles, except that of 'Promotor of Co-curricular Activities'. Here it was found that younger Principals were perceived to be performing this role to a greater extent.

On the whole, the results showed very little rel tionship between personality factors and role performance. One dimension of personality—'Sober-enthusiastic' was found to be related to three of the roles. It was, therefore, inferred that a Principal who is on the higher side of the dimension, i.e., more enthusiastic, is perceived to be performing the roles of 'Academician and Teacher', 'Representative of the College' and 'Bridge Builder with the Community' more frequently.

4. Ten factors of organisational health wer studied for their relationship with role performanc of the Principal. These ten factors were Goal Focus Communication Adequacy, Optimal Power Equalisation, Resource Utilisation, Cohesiveness, Morale Innovativeness, Autonomy, Adaptation and Problem-solving Adequacy. The relationship between the te factors of role performance and the ten factors o organisational health, resulted in a 10 × 10 correlatio matrix. It was found that with a few exceptions all the factors of role performance were significantl related to the factors of organisational health.

A few of the relationships were not significantl positive. None of the relationships, however, wer found to be negative or inverse. On the whole, on may conclude from the data that role performance o college heads is significantly related, in a positiv way, to the organisational health of a college.

Recommendations

The following recommendations are made on th basis of the findings of the study :

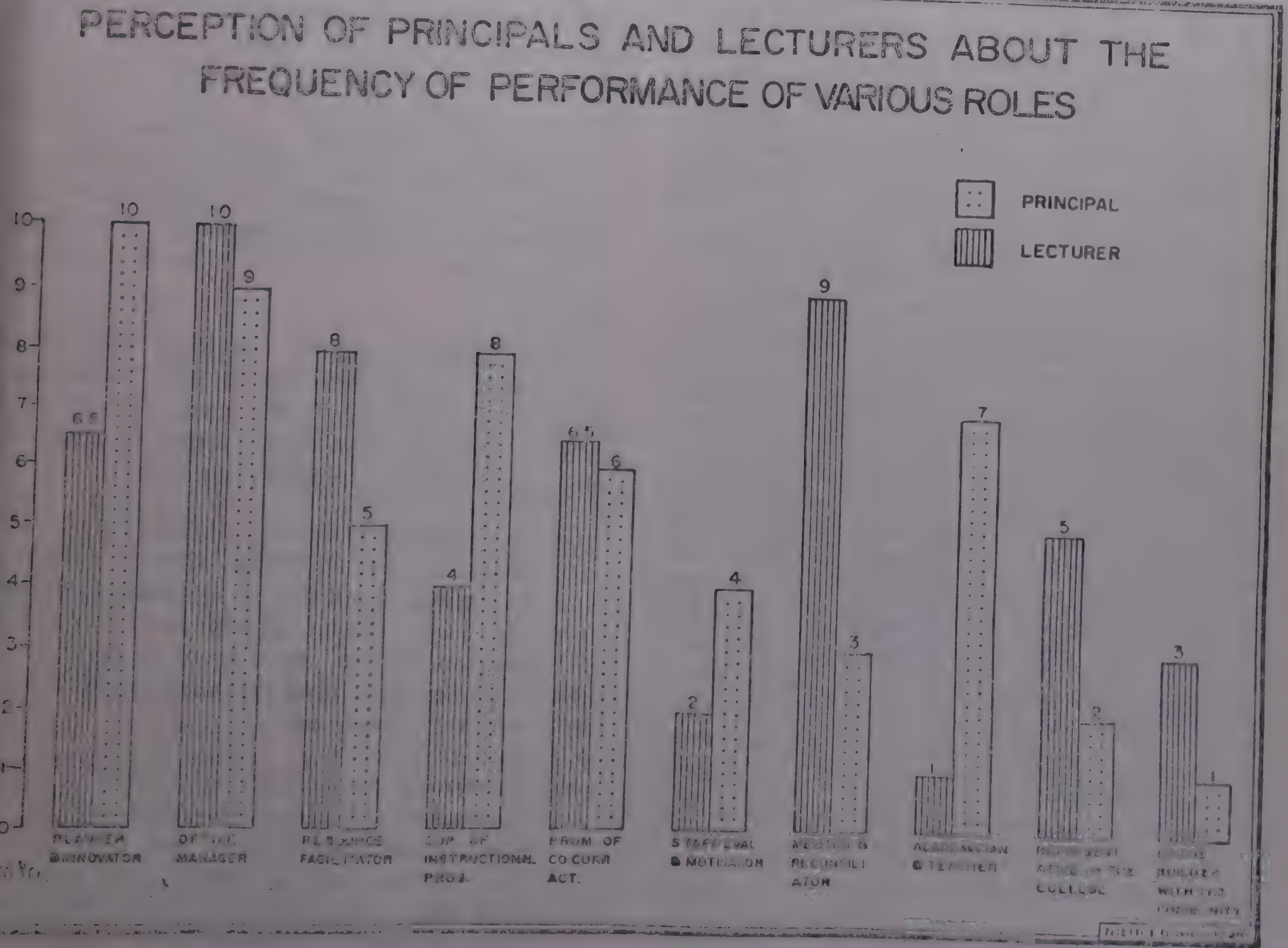
1. The study shows that the college head appears t be more of an administrator than an instruction leader and spends most of time in dealing wit routine administrative chores rather than wit academic matters. The head of the college is,

training and profession, an academician. He rises to the level of headship by virtue of his accomplishmens in and contribution to the pursuit of excellence in academic fields. In order to make it possible for him to play a role which is more befitting to his background and profession, it is suggested that :

(a) Delegation of administrative duties and authority among members of the faculty would enable the college head to devote more of his time for instructional leadership. This suggestion is well-known and, in fact, has been advocated from time to time.

(b) Creation of a post of an administrative manager in each college would allow more time for a college head to perform the role of an instructional leader. High academic qualifications need not be attached to this administrative post. At the same time, the incumbent of this post should have specialised training in educational administration to take responsibility for many of the administrative duties of the college head. In order to attract and retain suitable personnel for this post, the pay scale for the post may be only one scale lower than that of the Principal.

2. There is a need for imparting knowledge and skills of effective communication to the heads of colleges in order to eliminate a communication gap which arises because of the differences in perceptions of the head and his/her staff with regard to performance of certain roles related to instructional leadership of the college head.
3. There seems to be a need for reassessment of the criteria for the selection of heads of colleges. Doctoral qualifications, experience as principal and vice-principal and chronological age need not be given undue emphasis because they do not seem to be related to role performance.
4. One of the findings that there is no difference between the role performance of Principals with or without professional training need not be viewed as discouraging the training of college heads. In fact, it points out the need for modifying the nature of training programmes. A full fledged skill based programme in college administration is recommended for college heads for equipping them with knowledge and skills about their roles.
5. It is imperative to make the college heads aware of the various dimensions of organisational health in a college. The understanding and insight into improving the organisational health would help them in performing their roles better. ☐



PERCEPTION OF PRINCIPALS AND LECTURERS ABOUT THE FREQUENCY OF PERFORMANCE OF VARIOUS ROLES

EDUCATIONAL TECHNOLOGY
Some Recent Innovations

Beena Shah*

Advances in informatics offer a new global resource that provides potential for far-reaching social changes. Futurists presume that computing education and communication technology will have an impact on political, social and economic aspects of the society which would be far greater than the impact of the industrial revolution. We are moving across the threshold into a new high tech era—an era of a world-information-based society.

In developed countries, recent years have seen a gradual disappearance of the teaching machine and radio, particularly, after the introduction of micro computer in 1980s. In the middle and late 1950s, specifically, after the launching of the Sputnik, there was an urgent demand for production and delivery of television courses. Subsequently 242 channels for the exclusive use of television in education were formulated in U.S.A. and the Federal Communications Commission, awarded to each state one or more channels (Wittich & Schuller, 1979). It is interesting to note that university presidents, deans, professors, state and city school superintendents, public officials, teachers and various other educators (Saettler 1968) promoted the idea of educating people in school and at home through television. But till the middle of 1960s, only 100 out of 242 education channels were in operation. Instructional television was not accepted by the teachers as an effective media and often educators and instructional technologists were blamed for this failure, that they produced uninteresting and instructionally ineffective programmes. With the introduction of computers in 1960s, gradually the interests were diverted. Through computers, individualised drill and practice, direct information transfer with learning check points, immediate feedback and remedial instruction was possible. Further, in 1980, when micro computer was introduced in education, interests of the society strengthened in using more sophisticated technology for instructional purposes. Recently, attention is being focussed on the use of laser discs and holography to bring remote and three dimensional imagery into the schools. At present, the span of computer managed programmes is from very simple computer managed instruction to highly sophisticated programmes.

In this paper, an attempt has been made to explore the recent innovations having significant role and future potential in teaching process. These are Computer Managed Instruction; Tele-Conferencing; Videotex and Teletex; Interactive Video-Disc; Robot Techonology; Spatial Visual Computers; Information Technologies Workstation; and Networking Computer Based Instruction.

Computer Managed Instruction

Computer managed instruction (CMI), has had over a twenty year history, dating back to the early 1960s. Introduction of micro computer in 1980s, has generated a new enthusiasm in society to use it for instructional purposes.

Definition : Burke (1982) has defined CMI as—"the systematic control of instruction by the computer. It is characterised by testing, diagnosis, learning prescriptions and through record keeping." Leib (1982) has given a more general definition—"CMI includes all applications of the computer aid the instructor in instructional management without actually doing the teaching." Thus, using this criterion of computer assisted testing and classroom management programmes, including electronic grade books may be classified as computer managed instruction programmes.

Uses : Various computer scientists and educationists (Budoff et al. 1984, Milner 1983, Patterson & Patterson 1983, Riedesel & Clements 1985, Willis e al. 1983), identified following major benefits wit computer managed instruction programmes :

(a) *Reducing Clerical Task* : It has been observe that more than 50% time teachers spend o preparing, administering and evaluating/scoring tests, keeping records and filling out th progress reports, etc., spent on clerical functions can be reduced appreciably with the us of CMI programmes.

(b) *Enhancing the Testing/Instructional Process* A strength of the computer is its ability t generate, administer, score and provide dat for analysis—quickly, reliably and uniforml The use of CMI reduces the time devoted t these functions. Besides, it provides immedi ate feedback on student mastery or the pr

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scription of teaching-learning activities to make corrections in their deficiencies.

(c) *Facilitating Communication* : The reports generated through computers communicate uniform information to teachers, students, administrators and parents. This procedure helps to develop an environment for open communication on the issues affecting student learning and the quality of the instructional programme.

(d) *Promoting Large Scale Individualization :* The computerized method has proven to be a better choice in handling a massive amount of information related to the districtwide individualized curriculum from a group-paced instructional approach to a self-paced one.

(e) *Enhancing StudentProgramme Evaluation* : The evaluation function of a CMI programme enables teachers and administrators to :

(i) make diagnositic, formative and summative judgements about students;
(ii) make a comparison of students' standardized test performance with national norms;
(iii) determine what teaching strategies and resources are working successfully;
(iv) reduce teaching error rates; and
(v) redesign and improve the different steps of the educational process.

(f) *Positive Attitudes* : On the basis of experimental studies, it is clear that the students prefer the CMI programme because it provides them an opportunity to interact with a computer and to obtain positive reinforcement for their efforts. Similarly, teachers not only support CMI but feel it is superior than other instructional technologies.

Tele-Conferencing

In the late 1950s, the satellite communication ystems motivated some scientists at Bell Laboratories f U.S.A., to develop a non-geosynchronous satellite ommunication system. The communication satellite Telestar—1), was launched into a geosynchronous rbit in July 1962. After that, several satellites were unched into the space by other countries too. Now ectronic meetings, convened across a nation or ound the world, have become more easier as well as cost effective. Every day thousands of tele-conferences are being held in different sites and millions of interested persons share information via telephone lines, eliminating the need to travel not only long distances but even shortest ones.

Initially, tele-conferencing was applied to business, medicine, news, military, agriculture, and official and administrative purposes. Now it has expanded the horizons of education too. This technology is currently being applied to solve the problems of rural education. The results are quite satisfactory. Recently, attempts have been made to use tele-conferencing as a possible way of delivering instructional materials to students in a cost effective way. The new technology presents information in a concrete fashion and provides students with more accurate verbal and visual facsimiles. The speed and immediacy of information can be comprehended without special efforts or skills.

Tele-conferencing has been implemented in learning environment for only a short while. However, the current applications of tele-conferencing—distance education, enhancing the quality of teaching-learning process, delivering information to remote rural schools etc., have already enhanced its use for educational purposes. Numerous studies (Barnhardt 1984, Burmester 1984, Connell & Smyer 1984. Haile & Richards 1984, etc.), have proved the validity of tele-conferencing in teaching-learning process.

Types of Tele-Conferencing

Tele-conferencing can occur between two or several different locations. Any one of the following formats can be used in teleconferencing :

(a) *One-Way Video/Two-Way Audio* : It is the most common format. Video and audio signals originate from a television station or a mobile unit. The signals are transmitted into a communication satellite's orbit and then downlinked to an earth station (satellite dish), and to the tele-conferencing participants. The participants are encouraged to interact through a direct telephone line. The audience can be heard but not seen at the point of origin.

(b) *Two-Way Audio/Two-Way Video* : This format is more expensive and mostly used by the television networks. In this format, participants of different locations can see and hear to one another. The audio and video signals from both the locations are transmitted via satellite and received by satellite dish.

(c) *Two-Way Audio* : This is the most inexpensive format of tele-conferencing. In this format information is received via phone lines and amplified through a speaker phone. The responses are sent from microphone via phone. This format is effective when the information to be delivered is not visual in nature.

(d) *Picture Phone Tele-Conference:* This format is slightly different from two-way audio-video tele-conferencing. In this format still images are sent via satellites, micro waves, land lines or other means while audio signals are sent through phone lines.

(e) *Computer Conferencing :* At present it is in its infancy, but it has the potential to be one enhancing productivity the most. It consists of communication terminals which are used by participants to obtain to access a central computer. The central computer stores text entered by the sender and forwards the information to the recipients, when they call the computer.

Tele-conferencing may be applied successfully both for instructional/professional developments. Few of them are discussed here, in brief.

A. Instructional Applications

(i) Teaching some subjects (e.g. maths, science, computer, etc.,) in remote areas where experts are not available.
(ii) Teaching the same subject matter in different campuses where simultaneous instruction is desired.
(iii) Teaching overcrowded classrooms where demonstration is critical.
(iv) Teaching new technology where access to information is limited and costly.
(v) Teaching a subject in a big geographical area where standard of instruction is crucial.
(vi) Teaching subject matter for adult education programmes where attendance in the class is a problem.
(vii) Teaching materials in multi-sites where the participants' interaction is desired.
(viii) Watching special academic events, such as speech, discussions, etc.
(ix) Listening to keynote speakers who cannot travel extensively and with whom interactio is very much desired.

B. Inservice Training/Professional Development Applications :

(i) Updating the information.
(ii) Immediacy of information.
(iii) Renewing credentials.
(iv) Inexpensive training for a large group.
(v) Watching different models of teaching a different sites.

Teleconferencing is not intended to replace th classroom teacher, but rather to extend/suppleme the classroom teaching beyond its immediate wall Tele-conferencing has great potential in increasin the effectiveness of instruction. The telecommunic tion revolution offers different channels of instruc tional communications, from telephone, micro wa and satellite to computer. Tele-conferencing can b cost effective and time saving. In addition to thes tele-conferencing enhances the effectiveness in teacher inservice programmes.

Video-Tex and Tele-Tex

Videotex and teletex are new technologies enormous promise. In Europe teletex has bee introduced on a wide scale. Teletex and videotex hav replaced many traditional information sources (Gabr 1988) in France, Great Britain, Canada, West Ge many, Australia, Japan, Itlay, etc., where nation videotex systems are in operation.

Teletex emphasises information with broade appeal—whether sports, news headlines, wherea videotex offers a wealth of more highly specialis services : educational features, classified advertis ments, directory listings, financial data and much els For this reason, videotex is the choice of many co panies and they are investing considerable capital its testing and development.

Videotex : It is a two way interactive communic tion system, wherein students and other users ca transmit requests to a central data base, often a ve large computer, which can fulfil many reques simultaneously for many different users. With vide tex, transmission usually occurs via telephone or cab TV, and user often employs a personal computer a display terminals of one kind or another. There a three broad classes of videotex terminals :

Television sets with added decoders; Micro com-uters possessing decoding programmes for videotex; nd decoded videotex terminals.

A computer keyboard allows students to query the entral data base or source in order to obtain specific nformation.

Teletex : It is one way system with signals followng from a source to a user who often reads the desired nformation on a television screen. The information may be relayed to the user over telephone lines, by radio and television signals, by cable-TV and even micro wave transmission. In teletex, a single set of electronic text is sent simultaneously to all viewers, and by using a special fixture attached to the set, a ser can select certain pages of text from the continuously cycling pages of data appearing on the screen.

Specialised Educational Applications : In addition to specialised commercial development of videotex and eletex, educational institutions have developed recent nnovative applications for classroom. One of the nost ambitious is called the "Electronic Text Conortium", which includes the University of Nebraska, Visconsin Extension, San Diego and the Boston Educational Television Station WGBH. The students vho had used videotex scored higher than the students n a control group (Pfoehler 1985). Other universities tilising videotext are—San Francisco, Michigan, New York, Florida and South Florida. The benefits are triking to users, who receive a wider diversity of aterials for study and research than would otherwise e obtainable. The disadvantages arise only in ansmission high costs.

Potential for the Future : In United States, the deotex companies are investing more and more on a chnology that has been named "Quintessential edium of 21st Century" (Fitzgerald 1985). Link sources have drastically revised projections for deotex. As the number of the users is not high ough to satisfy advertiser's criteria, there is a little ope that videotex will grow into a massmarket as an vertising medium.

Thus, the success of videotex and teletex is still ry much in doubt.

eractive Video Disc

There is a growing pool of information concerning interactive video in education and industry. Beginin the late of 1950s, this medium has effectively combined a micro computer and a video disc/tape for instruction/training. This technology has had success in many areas, particularly, in military, health care, emlpoyee training and special education (Evans 1986).

Although, researches carried out on interactive video (Taylor 1985, Bosco 1984), focus primarily on instruction for individual learners, yet, some studies (Malouf et al. 1986, King & Reeves 1986), do indicate the effectiveness of this new medium for the group of learners. Vadas (1986) has also reported that in the interactive video group, learning was 300 per cent higher than the group learning in the lecture classroom.

Use of Interactive Video Programmes : The simulation of thought and group discussion is one of the primary instructional uses for this programme. Secondly, interactive video can present a series of precise video sequences, specially based on learner input from the entire group. Such input is easily obtained through a consensus of the learners who are watching the scenes. Thirdly, not only interactive video allows learners to choose appropriate video sequences, it also allows for conse quence remediation, where learners are able to see the results of particular actions. Another added feature of using group interactive video is that the entire group has the opportunity to see the results of a variety of choices from a number of different individuals. Thus, students may learn more from unintentional classroom activities and interaction than from situations that are preplanned.

The relatively high cost of interactive video equipments often preclude the purchase of enough instructional unit to implement effective individualised instruction. In group interaction video, a school needs only to purchase a single unit for an entire class. Thus, the interactive video disc can be used for both individualized and group instruction. However, its use for group instruction is more beneficial and productive. The interactive video has been shown by a variety of studies to be effective in a number of instructional situations. A good example of such exuberance is the comment made by Jonassen (1984) : "There is a little doubt that microcomputer controlled video disc systems represent the most potentially powerful communication device in the history of instructional communication." Thus, there is a pressing need to retrain teachers to accept and use this new technology. Teachers' acceptance will be an important hurdle to overcome as compared to the relatively high cost.

Initially, the industrial robots were touted to be a vital link to the further prosperity of the industries. Similarly, science fiction robots are used in films and literature. Robots are becoming more and more popular in the field of education. The news media and several other retailers have introduced robots for domestic use with the hope that an integration of robots with the society would be possible.

Educators, in general, are starting to realise some of the potential use of robots. One of the significant use of educational robot is to aid handicapped individual. However, as robots become increasingly available, it is important to know the basics of robotic technology and the variety of its educational applications.

What is Robot : "Robot is a combination of computer and mechanical technologies with the dual goals of manipulation and movement."

The major parts of the robot are :

(i) *The Controller* : It is a part of the robot which is programmed with the needed steps for the robot to accomplish its task.
(ii) *The Power Supply* : The energy (hydraulic, electric or pneumatic power sources), which allows the robot to perform its designated functions.
(iii) *The Manipulator* : It is the mechanical part of the robot. It contains the actuators which convert power into useful movements. The manipulator most commonly refers to the arm of a robot. These are usually made of metal and may have an outer coverage of metal or plastic while some have an exposed skelton and cabling.
(iv) *An Effector* : There is a vide variety of end effectors, e.g. vacuum and magnetic pickups, welding torches, point guns, etc. However, the most familiar is the two fingured gripper.

Educational Applications of Robots

1. *Robots as Examplars :* The robot can be used as a physical examplar of computer control over a mechanical device. It also functions as an examplar of the programming process by accepting and responding to instructions sent to it in any programming language e.g. LOGO, BASIC, PASCAL (Watt 1984, Marsh & Spain 1984, Delgado 1986). As such, the use of the Terrapin Turtle, Topo and the RB-5X rob as examplars of LOGO procedures has bee made in elementry and some kindergarte classes. Many parts and sub-systems of robc may be used to exemplify scientific an mathematical principles. In science, the cor cept of speed, force, acceleration, angul momentum and levers, etc., can be demonstr ted using robots. Similarly, in mathematics three dimensional cartesian points and trign metric functions can be explained by robot Thus, robots can be integrated as a part instructional technology.

2. *Robot as an Object of Instruction* : The expa ding uses of robots in industrial manufacturi and production have led to the developme of a new curricular initiative in physic industrial engineering and technology. Voc tional education is deeply involved in teachi robotics. Many countries, therefore, ha invested in developing vocational educatic programmes to provide skilled technicia that can install, use, and service robo Vocational schools have had to readjust th curricula to take into account the need robotic education to train the required ma power.

3. *Robots as Functional Prosthetic Aids :* The u of robotic devices as prosthetic physical ai has been shown to be technologically feasi and functionally effective (Hoseit et al. 198 Seamone & Schmeisser 1986, Leifer 198 Progress in this area promises to generate variety of electromechanical devices for t enhancement of human abilities which ha been damaged or are nonfunctional. appears that the prosthetic advantage afford by robotic devices applies to certain physica handicapped conditions including spinal co injury (Petrofsky & Phillips 1983, Marsolais Kobetic 1986), with cerebral plaised childr (Howell et al. 1987) and with disabled geriat patients (Englehardt & Awad Edwards 198

There are several constraints hampering the ad quate investigation of robotic applications in spec education, including cost of hardware adaptation, a a software design and development (Moore et al 198 In addition, there are no specifications of effect training methodologies in the work that has alrea been done. The future of robots is promising in t area and may provide answers to vocational a recreational needs of the orthopedically handicapp

Spatial Visual Computers

The micro computer offers unique capabilities for computation, motion, simulation, colour and sound cueing in visual learning strategies, pacing of visuals, graphing and shading in the classroom. Motion, sound, colour, pacing and dynamic shading are relevant variables to current research involving visual learning and spatial visualization.

Dwyer has conducted a series of researches (1968 a, b, 1969, 1972) on visual learning which sheds some light on computer enhanced instruction and visualization. He found that using televised line drawings, complemented by motion (such as dynamic shading on a large computer screen), is an effective visual learning strategy. Such a dynamic drawing may facilitate student achievement more than static chalkboard drawing by focussing on important aspects of instruction and by attracting students' attention on relevant cues. In 1964, Kress and Gropper found that external pacing is a crucial variable for high achievement in visual learning. When externally controlled pauses are built into computer enhancing instruction (CEI) software, in pressing visual materials, a pace can be selected by the instructor that is compatible with high mathematics achievement and that allows for individualization of instruction. In view of Cronbach's recommendation (1967) to conduct the researches on aptitude (such as spatial-visual ability) that interact with variations in instructional presentation, an ATI (aptitude treatment interaction) study was carried out by Kiser (1986) on two colleges (Algebra classes) and reported the following findings concerning the pedagogical effectiveness of CEI :

(i) Micro computer is an effective instrument to assist and enhance mathematics instruction.
(ii) CEI presentation does enhance positive attitude significantly and therefore, CEI students would be hignly motivated.
(iii) Students with high spatial ability did significantly better in the CEI group than in the traditional group.
(iv) Computer presentation of a mathematics topic involving motion, simulation, sound, dynamic shading and external pacing is more effective than a traditional presentation of the same topic.
(v) It demonstrated an innovative and effective strategy for teaching a traditional topic in mathematics (linear programming) and non-traditional problem solving strategies and simulations.

Thus, it is clear that micro computer makes a significant variation in the achievements. Spatial-visual ability is of special interest to mathematics teachers because it has a positive correlation with achievement, specially in plane and solid geometry (at high school) and in descriptive geometry and drafting (at higher levels). The educational implications of using computer technology in the classroom to enhance students' spatial visual ability in every discipline are enormous. In future researches attention of teachers, computer scientists and administrator is needed to investigate whether or not spatial-visual abilities—one of the primary mental ability—though rarely taught as such, can be increased through classroom intervention with the computer.

Information Workstation Technologies

The information technology revolution, although more developed in some social contexts (e.g. industry, business) than others, has matured to the point that questions of equity (who benefits, when and how ? and who plans and directs ?) are currently paramount. The old educational arena is fragmenting and a new educational pattern is emerging : proximate to distant educational sources (Stephenson & de Landsheere 1985).

Education is shifting paradigms from how much or what a person knows about his ability to reorganise and restructure his mental functioning with the aid of new cognitive and educational tools (Pea 1985). If proximate and distant work is so important to the success of scientists, businessmen, politicians, doctors and manufacturers, the proximate and distance education will take a new meaning :

Proximate learning means education in a local setting (teacher/parent and learner), where marerials are maintained, selected and presented.

Distant education is learning which comes from afar and is exemplified by satellite, television, network and database technology applications.

At present the educational institutions are characterized by the classroom and teacher (near education), whereas scientists depend upon information technologies i.e. computers, networks, databases, etc. and are handicapped without them (Jennings et al. 1986). According to Crecine (1986) the new scientific workstation will be available within few years. It will utilise UNIX-based systems software and will be 5 to 10 times effective than current micro computers. It will also provide the user with the most advanced design aids, graphic tools and knowledge based systems. At present almost every European country has national information network which is interlinked with the international network system. This includes United States of America too.

The distant learning component has no boundaries and is characterized by national/international communications. Increasingly, we are becoming global learners as learning technologies foster the development of academic specialities through distant education.

Proximate Information Technologies : The campus-wide LANs (which are rapidly being installed in colleges and universities of developed countries) will be the backbone for educational technological development. As the central mission of universities is to create and disseminate information, borderzone development must include all social contexts, where public information is needed. Some research findings (National Task Force on Educational Technology 1986, Stephenson & de Landsheere 1985) concluded that in future, one may receive a major portion of the education in the home.

Distance Information Technologies : Distant technology application fit in any social context (home as well as school). Unfortunately because the access is currently controlled through user cost, equity may become a major problem. However, distant education sources are proliferating rapidly. Wide area networks are also increasing fastly. Potential problems which could limit the future of distant learning technologies include equity of users' access, societal acceptance of distant education, reconciliation of technological innovation, political and economic realities and market place factors.

It is expected that by the year 2000 public schools, colleges and universities will integrate distant education with the present proximate education through the use of technological innovations like workstations.

Networking Computer Based Instruction

Telecommunication technology has tremendous impact on the computer world. All types of computers —from large mainframes to home computers are being linked through communication networks. This has led to the sharing of databases and the use of electronic mail.

Historically, major computer based instruction (CBI) systems such as PLATO or the IBM Interactive Instruction System (IIS) have relied heavily upon communications for the remote delivery of courseware. Now-a-days, most systems use a standard protocol (ASCII) and can be accessed by any type of terminal or microcomputer. The use of networks to overcome the barriers to transportability is currently the main advantage of networks for CBI; a potentially more significant application is emerging in the form of computer-conferencing and messaging to provide electronic lectures. These lectures allow the participants to take a course whenever and wherever they wish. These permit both, individual discussion with the instructor as well as group interaction with the other participants. Another major application of communication networks is specialised education to handicapped, health education or insurance training.

Network Alternatives : There are a number of different network alternatives available which can be used for CBI systems. However, the two major types of networks currently in use are :

(i) *Remote Networks* : This involves the use of telecommunications between a central computer and database and the terminals or the micro computers used for instructional delivery or development.

(ii) *Local Networks* : Local networks do not need telecommunication links and usually connect terminals/micro computers in the same building or campus.

Protocols : There are a number of different local network architectures and transmission protocols. The most common are terminals and micro computer cabled directly to mainframe controllers by means of coax cable and using high speed synchronous protocols.

Processing : Remote or local networks can be either time shared or distributed systems. In a time shared system, all processing is done on the central computer and the other terminals/micro computers in the network simply act as input/output devices. Whereas, in a distributed system, processing is done locally by the terminals/micro computers and data is down loaded/up loaded between the central processor and the terminals. The role of the central processor in a distributed network is just to manage the network, not to make computation.

Communication Components : To equip a microcomputer for communications with a remote network, three components are needed: software, a serial interface card, and a modem. Communication software provides the micro computer with the capability of transferring files and storing them on diskette. Thus, it allows the up loading down loading capability of distributed systems. This software also provides the facility to change the parameters of communication protocols and switch from batch to interactive transmission. It also allows to set display parameters such as—width, page size, display speed, etc.

Interconnecting Networks : To connect two local networks, a telecommunication link is established between any two servers/terminals in the network. These two links are called the gateway nodes. The link may be directly connected between the two local networks or it may pass through a mainframe host. In addition, a local network can be linked to a main frame, either directly or via telecommunications. Since these gateway nodes may involve different protocols, the machines which serve as nodes often have hardware or software protocol converters.

Public/Private Networks : Networks can be public or private. In developed countries most business organizations e.g. travel and hotel industry, bank, etc., have started their own private networks for administrative work.

Conferencing : A number of organizations are now offering electronic lectures conducted via computer conferencing. The systems involve public networks that can be accessed via any micro computer or terminals equipped for communications.

The use of electronic lectures represents a new form of delivering classroom lectures at higher education in the United States of America. A substantial part of courses can be covered through computer mediated form, either in individualized learning form or group based electronic lectures. A significant policy implication of this development is that it allows the educational or training institutions to go beyond its regional sphere. Similarly, it allows an instructor to deliver lectures from any point in the country.

The sociological and administrative implications of such widely distributed teaching and learning device have not yet been explored, but are likely to bring about changes profound in existing institutional practices.

Some of these alternatives within the context of specialized CBI systems are PLATO, IIS or TICCIT, whereas others simply involve the transfer of courseware among standard micro computers equipped with similar kind of communications capability.

The major problems encountered in using networks to share courseware are terminal incompability, inadequate networking software and lack of experience in using networks of group instruction and interaction. It addition, the use of electronic lectures and videotex, raises significant issues in institutional control of educational offerings. Delivery of instruction via communications has the potential to break traditional geographical barriers. Communications offer great potential to overcome earlier limitations of CBI in terms of sharing courseware and provide new opportunities for computer mediated group instruction. By combining individualized and group based instruction, networked CBI represents a more complete instructional delivery system. In conjunction with advances in other areas of computer and communications, CBI is gradually beginning to live up to its true potential as an effective instructional medium.

At present a wide range of educational implications of information technology have given exciting glimpses of the capabilities of new technologies, and an insight into their possible role in national education systems. Fundamental research, analysis and synthesis are needed to guide policy planners and decision makers in taking advantage for making recommendations of these new tools, because without adequate planning the implementation of even a widely proven effective technology in education may have an adverse effect. Educators, computer scientists, policy planners, decision makers, schools and industries need a combined forum for the timely presentation and discussion of the burgeoning technical developments and potential that they offer to education. On the basis of research findings, cost effectiveness, availability of hardware and software and instruction efficacy, the third world countries would be in a position to decide the appropriate technology/technologies for raising their literacy percentage and quality of education. □

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Indian School of Mines

Hon'ble Shri L.P. Shahi, Union Minister of State for Education and Culture delivered the Convocation Address at the 12th Convocation of the Indian School of Mines, Dhanbad. Shri Shahi lauded the School's record of glorious service to the nation in educating engineers and technologists for the mineral sector and said that "the Indian School of Mines, besides providing specialised programmes in the mineral engineering field, must now utilise its broad spectrum of expertise by grouping/regrouping into 'Centres' with specific thrust areas and provide multidisciplinary focal points for research and development". Excerpts

Convocation

Indian School of Mines, Dhanbad has a 62 years' record of glorious service to the nation. By all accounts it is one of the foremost institutes imparting higher education in the Earth Science and Mineral Technology and Management in the world.

Government of India had thought it fit to establish this institution at Dhanbad in 1926 because of its locational advantages. As a Deemed University under the UGC Act, the School is uniquely placed for educating engineers and technologists for the minerals sector; it is entirely geared to the mineral industry which contributes over 4% of the G.N.P. Its programmes in mining engineering, petroleum engineering, mining machinery, mineral engineering, industrial engineering and management, applied geology and applied geophysics are dedicated exclusively to the minerals sector of the nation. There may be very few institutions of its kind in the world. The track record of the School in the past six decades has been impressive and its alumni occupy today the highest positions in the mineral industry of the nation; there are many others from the school who are holding positions of distinction in the mineral industry in far-flung corners of the globe.

In the past two decades, the School has made impressive research contributions in the fields of rock mechanics and ground control, environmental engineering, mineral engineering, mineral engineering mine system optimisation and computer applications in management as well as different fields of petroleum engineering, geology and geophysics.

The School cannot however rest on its laurels and must move continually forward to fulfil its obligations to the nation through improved quality of education and more purposeful and relevant research in all areas of mining and mineral engineering and management. In keeping with the National Policy on Education (1986) and Programme of Action, the School deserves all support and encouragement which will enable it to cope with the rapidly changing mineral industry environment. Revolutionary changes that are being witnessed on the industrial scene today are in many cases the contributions of institutions of higher learning and such institutions have to increasingly come to the fore and be the centrepiece in research and development. As the VIII Plan structure is being formalised. It is as well that we look into the areas of development where the School can make a distinctive mark in the growth of our vital minerals sector. I am convinced that whether the mineral industry leaps into the threshold of the 21st century or limps into it will largely dictate the future of Indian economy, if not our survival. Institutions like Indian School of Mines must therefore prepare themselves not only to meet the current challenges but also that lie ahead.

The Indian School of Mines, besides providing specialized programmes in the mineral engineering field, must now utilize its broad spectrum of expertise by grouping/regrouping into "Centres" with specific thrust areas and provide multi-disciplinary focal points for research and development. The School has never been in a stronger position than it is now to serve the Society and the institution can continue to flourish only by being prepared to contribute to the minerals sector in ways significantly different from those that it has professed so far. I may, therefore, briefly touch upon some of the emerging areas in which School's new Centres could probe and search for new knowledge and technology for the benefit of the mineral industry. For, after all, as Theodorevon Carman once said: "while Scientists explore *what is*, Engineers create *what has never been*" and it is the responsibility of the professionals at Indian School of Mines to bridge the gap between the resources available and the needs of India's minerals sector.

Mining in India, be it for coal or non-coal, is a low technology industry whose productivity and profitability leave much to be desired. There are major challenges to be grappled in finding new ways of excavating rocks, developing better systems of materials handling, finding new technologies for mineral processing, and at the same time not losing sight of the environmental needs. The future prosperity of the nation and of the mineral industry will depend upon new technological breakthroughs in these vital areas. I am sure these can be possible by creating a Centre of Innovation for Mining Technology, a Centre of Rock Excavation Engineering, a Centre of Mineral Resource Development and a Centre of Information Technology at ISM. Only by creating such Centres of excellence, focussing on research and development needs and priorities of specific areas of technology, can the future be assured. While this would need a massive investment of resources, I am sure this institution could optimally utilise such resources for a better future for the mineral industry.

I am impressed by the School's Continuing Education Programmes. This academy-industry interface can be further broadened to provide the opportunity for continuing professional education for personnel in mining and geology throughout the length and breadth of this vast sub-continent of ours using modern techniques and communication methods for distance learning. Using the staff and resources at this Institution, appropriate programmes in higher level continuing education can be provided even to remotely located mining areas. I strongly commend that such programmes be considered by setting up a Centre of Distance Learning and the programmes developed by such Centre could provide material for the mineral industries in SAARC countries and even in South East Asia.

Very little work has been done in the area of mineral economics which requires good understanding of mining, energy supply and of the market. In working out the future strategies for mineral development policies in India, the School's pool of expertise can provide the nucleus for a Centre of Mineral Resource Development for the nation. The School has already mooted such a proposal and I am sure that this would receive due consideration by appropriate authorities. ☐

CENTRE FOR SOCIAL STUDIES

South Gujarat University Campus,
Udhna Magdalla Road, Surat-395007

Gram : RESEARCH Tel. : 87173/87174

TWO WEEK COURSE ON COMPUTER APPLICATIONS IN SOCIAL SCIENCES

The Centre for Social Studies, Surat is organising two-week ICSSR sponsored Course on COMPUTER APPLICATIONS IN SOCIAL SCIENCES from **5th June to 18th June, 1989**. The Course is meant for researchers and university teachers who are engaged in survey-based research and need to deal with analysis and data processing. This course is designed to orient the participants to fundamentals of computer, computer processing, FORTRAN language and foundation of data processing, quantification methods and packages like SPSS, LOTUS, WORDSTAR, etc.

We propose to select 20 participants. Travel, lodging and boarding will be provided free to the selected participants. Those selected will have to deposit Rs. 100 as earnest money which is refundable only after attendance in this course.

Applications of those who are interested should reach the Course Co-ordinator, Centre for Social Studies, University Campus, Udhna-Magdalla Road, SURAT-395 007 latest by **27th April, 1989 (Thursday).**

Excellence in Science Education

The Science Advisory Council to the Prime Minister has suggested setting up of advanced centres named after Jawaharlal Nehru to commemorate his birth centenary and creation of joint centres run by national laboratories and universities together to provide better research and developmental facilities in the university sector. In a report to the Prime Minister the Council has called for initiation of a programme of providing excellence in science education by establishing consortia of universities that can work in collaboration with higher institutions of learning, utilising their superior resources.

The Council favoured immediate launching of postgraduate programmes in certain special areas of engineering and technology such as mathematical modelling, computer simulation, materials technology, materials processing and polymer technology at some national laboratories which may be given the status of deemed universities for running such programmes.

It called for promotion of centres of excellence in universities around 'gifted' scientists and engineers, individually or in small groups, and provide them with flexibility and a degree of autonomy from the university administration. This would be necessary, the Council felt, because the university administration is "often not sensitive to the needs of research."

The Council suggested to the Prime Minister granting of autonomy to science and engineering colleges with a proven track record. It wanted large scale funding for improving institutional infrastructure of universities and other educational institutions as well as selected science and engineering colleges.

Introduction of innovative ways of training competent manpower for frontline areas of science and technology by short term training in identified bodies abroad has also been suggested by the Council.

Stating that the present polytechnics in the country were 'outdated', the Council called for formulation of schemes for training various categories of highly skilled technicians to meet their current shortage.

"As human and technological skills are the key to the creation of greater national wealth, steps should be taken to ensure that technical skills are commensurately rewarded", the report added.

Emancipation of Women

The first lecture in the Kasturba Gandhi Memorial Lecture Series on Emancipation of Women was delivered on International Women's Day on March 8, 1989 by Ms. Laxmi Menon, former Minister of State in the Ministry of External Affairs, Govt. of India, at the SNDT Women's University. Prof. Kamalini Bhansali, Vice-Chancellor of the University welcomed Ms. Menon and presided over the function. She stated that it was appropriate that the lecture series on Emancipation of Women was being inaugurated on International Women's Day which symbolised the crusade of women against injustice and which has been responsible for bringing women from all over the world together for a common cause. More so as it was being held at SNDT Women's University which is committed to the needs of women students and to society by achieving a social relevance and significance through diversified modalities and leadership role in tune with the demands of the time.

Ms Menon in her address stressed that tradition and bisexual division of labour are two major impediments against emancipation of women in India. She pointed out that tradition lost its relevance and validity when it denied women freedom and equality. In this context, Ms. Menon remarked : 'It is tragic that all our unsavoury traditions are deeply embedded in our religious beliefs, which are handed down from generation to generation making it more difficult to get away from its stranglehold'.

Ms. Menon stated that no social evil could be abolished by legislation, pointing out that the various laws against child marriage, dowry, child abuse and other evils were seen more in their breach than observance and the change in the attitude of men towards women is hardly visible.

Referring to the Universal Declaration of Human Rights adopted by the United Nations in 1948, Ms. Menon said that there was still widespread opposition to its full implementation and that local pressure was needed to make the conventions based on individual articles effective. She felt that the International Women's Decade, besides producing a temporary euphoria, had not produced any action-oriented programme to face the challenge of discrimination against women to give them equality. Many things had been done, she continued, and many more will be done but the situation was still comparable to what Tolstoy indicated about conditions of the serfs: 'The landlord did everything for the serf, except get off his shoulders'. This is a global problem and needs global action.

Education which is the surest means of emancipation is not available to large masses of women. Poverty adds to the sharpness of the situation. Even after 41 years of Independence, the national average of women's literacy is merely 24.84% and this is responsible for the failure of many developmental scheme and non-fulfilment of targets.

In earlier decades India was fortunate to have enlightened men work for the cause of women's emancipation. In spite of this advantage, the major portion of the work will have to be done by women themselves. Education is the key to this achievement. Ms. Menon emphasised :

'Women must educate, organise, sacrifice and act together'. She further stated that the challenges of women's emancipation cannot be undertaken by small groups of women. The movement for emancipation envisaged, can be realised only by women becoming self reliant through education and growing awareness.

Ms. Menon concluded her speech with Buddha's last message to his disciples which is most relevant to women's emancipation : Said the Buddha—

Be ye lamps unto yourselves
Do not depend on external help
Rely on yourselves
The more you depend on
yourselves
The more your potentialities be
realised.

New Bldg. for Journalism Deptt.

Prof. Yash Pal, Chairman, University Grants Commission (UGC) inaugurated the new building of the Mass Communication & Journalism Department at the Dr. Harisingh Gour Vishwavidyalaya, Sagar recently. Speaking on the occasion Prof. Yash Pal said that the Government spent Rs. 10 thousand on every college student. This investment was significantly higher in the light of Rs. three thousand per capita annual income of an Indian. It was therefore necessary for the teachers and the students to be responsible in the discharge of their duties.

He revealed that out of Rs. 15,000 crores earmarked by the Government for Higher Education in the country, the share of the UGC was a mere five per cent. The UGC allocated this amount to the universities according to their needs. He wanted that higher education should also receive financial grants from other sectors of the economy which directly benefited from higher education. Prof. Yash Pal felt that colleges and universities should not only depend on the government and UGC but should actively seek financial assistance from other sources.

Prof. Yash Pal called upon the teachers to avoid parochialism and regionalism. He felt that teachers should also expand their area of interest and work and collaborate with other teachers thereby expanding the horizon of knowledge.

Prof. Yash Pal also released the research journal of the Mass Communication & Journalism Department on Environment, Industry and the Role of Media, as well as the first printed lab newspaper of the department "SAGAR".

Futures Study Centre

The University Grants Commission (UGC) has sanctioned the establishment of Futures Study Centre at Pondicherry University to offer Post-M.Sc level programme in futures study. The Commission has sanctioned Rs. 5.00 lakhs for building, Rs. 2.25 lakhs for Computer and Equipment, Rs. 1.00 lakh for books & journals, Rs. 1.00 lakh for Visiting Faculty and Rs. 0.75 lakh towards working expenses. The programme will be offered from the academic year 1989-90 and the enrolment would be on the basis of national competitive test and on merit.

M.Phil in Future Studies

Devi Ahilya Vishwavidyalaya Indore, has introduced a part-time M.Phil. course in Future Studies (Interdisciplinary Education).

The course, sponsored by the University Grants Commission (UGC) and the Department of Science and Technology (DST), Government of India, aims at enabling the in-service teachers of schools, colleges and universities, planning and policy making personnel, technology forecasters and freshers to understand the nature of future studies and develop research abilities in conducting future studies in concerned fields and technology assessment. The course components are: Research methodology in Future Studies; The Futures Society; Educational Technology (Present and Future); Term Papers : on Futures Studies in chosen discipline of students; and Dissertation.

Second class Master's degree holders in any subject are eligible to join this course. Further details can be had from the Head, School of Education, Devi Ahilya Vishwavidyalaya, Indore.

National Elocution Contest

The Inter University National Elocution Contest was organised by the Cultural Committee of Jawaharlal Nehru University (JNU) in collaboration with Association of Indian Universities (AIU) and the University Grants Commission (UGC). This event of national importance was a part of the celebrations of Nehru Centenary year in the country. In order to encourage the participation of youth and to give them the opportunity to air their opinion, the implementation committee for Nehru Centenary celebrations proposed the National Elocution contest and rightly chose the Theme "Nehru : Architect of Modern India". The Contest was bi-lingual in Hindi and English.

Mr. P.N. Haksar, who was the chief guest at the function, critically analysed Nehru as an individual, political thinker, and discussed various political and philosophical aspects of his life and contributions. He advised and encouraged the participants to join the national mainstream to fight against all types of social/political injustice. Prof. M.S. Agwani, Vice-Chancellor, JNU add Dr. S.K. Agrawala, Secretary, AIU, also spoke on the occasion.

19 participants from all the ones took part in the contest. Miss Supriya Hebbar (TISS, Bombay), Mr. Dayan Krishan and Miss Poojita M.G. (National Law chool of India, Bangalore), Mr. Maqboul Ahmed Khan (South Gujrat) and Mr. Amar Prakash (Ravi Shankar) were adjudged the first, second, third, fourth and fifth respectively.

Similar contests were organised at zonal levels in which students from various Universities of our country participated and five best participants from each of the 4 zones were selected to represent their region at the national level. Jawaharlal Nehru University was the host of this National final.

Environmental Engineering Research Centre

The Thapar Institute of Engineering and Technology has received a grant of Rs. 25.00 lacs from the Ministry of Human Resource Development, Govt. of India, for setting up an advanced centre for research in Environmental Engineering. The creation of infrastructure of research, teaching and consultancy is visualised in two phases :

(a) Creation of laboratory space : Under this phase a new Environmental Engineering Laboratory has been established. The laboratory is being extensively used for undergraduate and postgraduate teaching and also for research work.

(b) Procurement of equipment for day to day use : Equipment for air pollution monitoring and a mobile van for sample collection and testing is being commissioned. Sophisticated equipment for advanced research in Environmental Engineering is likely to arrive from abroad.

Fabrication of working models of sedimentation tanks activated sludge process are underway. This shall help in improvement of teaching by demonstrating the process details and obtain kinetic data. Infrastructure of the Thapar Corporate R&D Centre is also being amply utilised for running the Environmental Engineering Programme.

Facilities for waste water characterisation for process development are available to industries and other interested parties.

Problems of Ageing

Anand Arts College, Anand under the joint auspices of U.G.C. COHSSIP, and the Educational Development Programme organized a Seminar on "Problems of Ageing" on 28th March, 1989. Dr. K.C. Patel, Vice-Chancellor of Sardar Patel University, inaugurated the event. Several eminent persons participated in this seminar. Only when person's mind becomes inactive he or she becomes old, remarked Dr. Patel in his keynote address. The college invited old and retired persons to share their views on the subject besides involving the select students.

News from Agril. Varsities

New Vistas in Oilseeds Research

The Tamil Nadu Agricultural University (TNAU) recently organised a 2-day workshop to chalk out future strategies in oilseeds research in Tamil Nadu. Highlighting the importance of the workshop, Dr. S. Jayaraj, Vice-Chancellor, TNAU put forth two fold objectives viz. increasing the production of oilseeds from 10.43 lakh tonnes (in 1984-85) to 18.00 lakh tonnes in 1989-90 and 27.00 lakh tonnes in 2000 A.D., and increasing productivity of oilseed crops from an average of 950 kg/ha to 1140 kg/ha in 1989-90 and about 1600 kg/ha in 2000 A.D.

Dr. Jayaraj said that the high energy rich oilseed crops were grown under energy-starved, rainfed, marginal or poor lands with very little inputs and plant protection. Quality seed was not often available and as such the plant stand was generally poor. Under this perspective, he called upon the oilseed crops researchers to reorient research strategies so as to effectively mitigate drought conditions. The establishment of good plant stand and development of prediction models for rainfall were the urgent needs of the day.

The Vice-Chancellor asked the plant breeders and agronomists to join together to test the performance of oilseed varieties not only as pure crop but also as intercrop and under rainfed conditions. He said if self reliance in oilseed production was to be achieved, breeder seed production should be given an impetus.

Disclosing the massive 7 lakhs programme for production of farm implements, Dr. S. Jayaraj underlined the need for appropriate farm machinery for sowing as well as harvesting Groundnut at a quicker pace as time and labour were critical factors. He also emphasised that the fertiliser prescription equations developed by the scientists should go to the farmers fields.

Based on the research data available, the workshop felt that Rhizobium inoculation for Groundnut at 1 kg/ha as seed treatment or 2 kg/ha as soil application along with application of 25 kg/ha each of Farm Yard Manure and sand could be recommended in the place of existing recommendation of applying only 600 gms/ha of rhizobium inoculations as seed treatment. It was also felt that the utility of phospho-bacterium in Groundnut should be given much attention.

On plant protection aspect, the workshop recommended that whenever a new culture was brought from outside, the same be tested thoroughly for its susceptibility to pests and diseases. Also the etiology of Tanjavur Wilt in Coconut be found out. Effective management of Groundnut leaf minor was also thought of.

The biotechnological approach in varietal improvement in oilseeds was favoured by the Vice-Chancellor while calling upon the participants to lay large scale trials of the high potential mustard variety 'Seetha', which has a duration of 75-80 days. Major problems of rust and diamond black moth in mustard should be tackled by developing integrated pest and disease management techniques.

The workshop felt the need for developing long dormant Groundnut varieties and hybrid sesamum resistant to philody.

News from UGC

INSAT-1B Programme of UGC

Between 1st May to 10th May, 1989 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV Network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

1.5.89

"Classical Mechanics—V : Psaudo Foreces"

"Role of Bank in Economic Development"

"Robotics"

2.5.89

"Chemistry of Man Made Fibres—I"

"The Origin and Adaptiveness of Behaviour"

3.5.89

"Mechanics of Metal Cutting"

"Whitman Tradition—An Interview with Madison Morrison"

"Mitosis and Meinsis"

4.5.89

"Introduction to Computers—V Basic—I"

"Mapping the Ocean Floor"

"The Poems of Jayanta Mahapatra"

5.5.89

"Story of Our Universe—IV"

"Vedic Mathematics—I :

Nikhilam Navatas Caramam Dasatah"

6.5.89

"In the Wings"
"Meaningful Sounds—I"
"Introduction to Indian Music—I"

7.5.89

No Telecast

8.5.89

"Classical Mechanics—VI : Universal Gravitation"
"Role of Banks in Rural Development"
"The Oceans"

9.5.89

"Chemistry of Man Made Fibres—II"
"Social Behaviour and Communication"
"Surgery of a Rate Deformity"

10.5.89

"Energy for Rural Development"
"Basic Nature of Sexual Reproduction"

Women Varsities VCs Meet

A first-ever two-day workshop of the women's universities Vice-Chancellors was held on April 12-13, 1989 at the Shreemati Nathibai Damodar Thackersey Women's University, Bombay. The theme of the workshop was Future Images : Mission of Women's Universities.

The Vice-Chancellors of all the five Women's Universities as well as of several other universities, eminent scholars and experts in women education and development discussed the future role of women's universities and the manner in which their special features could be sharpened. They also viewed the future projections and development activities in the light of the National Perspective Plan for Women and explored the possibilities of acquisition of resources besides the UGC and the Government for funding the women universities such as Indian trusts and charities, Non Governmental Organisations (NGOs) and international agencies, etc.

UGC Fellowships for SC/ST Teachers

The University Grants Commission (UGC) has invited applications for the award of 50 teacher fellowships for the year 1989-90 in Science and Humanities including Social Sciences from permanent teachers belonging to Scheduled Castes and Scheduled Tribes. Teachers in colleges affiliated to universities holding at least second class in M.A./M.Sc./M.Com. and below the age of 45 years (in case of women 50 years) are eligible to apply. Of these, 30 awards are for short-term fellowship of one year duration for M.Phil course and 20 awards for long-term fellowship of three years duration extendable by one more year for Ph.D. degree.

The Commission will offer a Living Expense Allowance of Rs. 750/-p.m. to outstation teacher fellow whose place of duty will be 40 kms. away from his/her place of research and a contingency grant of Rs. 5,000/- p a. for Humanities and Social Science and Rs. 7,500/- p a. for Science to all teacher fellows.

Applications duly completed in the prescribed form available from the concerned university or the Commission should reach the Education Officer (TF), Room No. 28, University Grants Commission, 35 Feroze Shah Road, New Delhi-110001 on or before 31st May, 1989.

NDRI, CIFE are Deemed Universities

On the advice of the University Grants Commission (UGC), the Government of India, Ministry of Human Resource Development has declared the Central Institute of Fisheries Education (CIFE), Versova, Bombay and the National Dairy Research Institute (NDRI), Karnal, Haryana as deemed to be universities for the purpose of the University Grants Commission Act, 1956.

The Commission has also declared the Kota Open University, Kota as fit to receive Central assistance in terms of the UGC Act of 1956 for all purposes including institutional development grants for buildings, books and journals, equipment, staff, etc.

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertation as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

- The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

CURRENT DOCUMENTATION IN EDUCATION

A List of Select Articles Culled from Periodicals Received in the AIU Library during March, 1989

EDUCATIONAL PHILOSOPHY

Gupta, N.L. Value education and women. *J Indian Edn* 14(2) 1988, 32-4.

Tuckman, Howard P and Chang, Cyril F. Conflict, congruence and generic university goals. *J Hr Edn* 59(6), 1988, 611-33.

EDUCATIONAL PSYCHOLOGY

Hutchings, Pat and Wutzdorff, Allen. Experiential learning across the curriculum : Assumptions and principles. *New Directions Teaching Learning* (35), 1988, 5-19.

Kottke, Janet L and others. Development of two scales of coping strategies : An initial investigation. *Ednl Psy Measurement* 48(3), 1988, 737-42.

Pekrun, Reinhard. Anxiety and motivation in achievement settings : Towards a systems-theoretical approach. *Intl J Ednl Res* 12(3), 1988, 307-23.

Pintrich, Paul R. Student learning and college teaching. *New Direction Teaching Learning* (33), 1988, 71-86.

Shamsuddin. Education for leadership. *Edn Q* XL(2), 1988, 14-16.

EDUCATIONAL SOCIOLOGY

N'Iraye, Babacar. In the shadow of the Eiffel Tower. *World Student News* 42(5-6), 1988, 13.

Sharma, Narayan Prasad. Women and higher education. *Yojana* 32(21), 1988, 6-8.

Soedjatmoko. Education relevant to people's needs. *Daedalus* 118(1), 1989, 211-18.

Sudarkasa, Niara. Can we afford equity and excellence ? Can we afford Less ? *Academe* 74(5), 1988, 23-6.

Washburn, Wilcomb E. The academic profession and contemporary politics. *Minerva* 26(3), 1988, 392-415,

EDUCATIONAL POLICY & PLANNING

NEW EDUCATION POLICY. *Aryan Heritage* V(54), 1988, 2-3.

Singhal, R.P. Making educational reforms work. *Edn Q* XL(2), 1988, 1-5.

EDUCATIONAL ADMINISTRATION

Dektawala, P.B. Organisational health : The new concept. *Prog Edn* LXIII(6), 1989, 129-31.

Greenberg, Milton. Search and ye shall find ? *Ednl Record* 69(3-4), 1988, 48-51.

Hesburgh, Theodore M. Academic leadership. *New Directions Higher Education* (61), 1988, 5-8.

Moran, E. Thomas and Volkwein, J. Fredericks. Examining organisational climate in institutions of higher education. *Res Hr Edn* 28(4), 1988, 367-383.

CURRICULUM

Price, Don K. The natural sciences, the social sciences and politics. *Minerva* 26(3), 1988, 416-28.

Raina, K.B. Curriculum development. *Edn Q* XL(2), 1988, 21-26.

TEACHERS & TEACHING

Elton, Lewis. Appraisal and accountability in higher education : Some current issues. *Hr Edn Q* 42(3), 1988, 207-29.

Feldman, Kenneth A. Effective college teaching from the students' and faculty's view : Matched or mismatched priorities ? *Res Hr Edn* 28(4), 1988, 291-344.

Knapper, Christopher K. Technology and College teaching. *New Directions Teaching Learning* (33), 1988, 31-46.

Piper, David Warren. Staff development in universities : should there be a staff college ? *Hr Edn Q* 42(3), 1988, 238-52.

EDUCATIONAL TECHNOLOGY

Le Blanc, Louis A. A method for evaluating and selecting micro-computer software packages. *Eval Practices* 9(4), 1988, 57-68.

EDUCATIONAL EVALUATION

Geiger, Marshall A. Discriminating levels of development through attitudes : An empirical analysis. *Ednl Psy Measurement* 48(3), 1988, 763-71.

Loacker, Georgine. Faculty as a force to improve instruction through assessment. *New Directions Teaching Learning* (34), 1988, 19-32.

McCornack, Robert L. and McLeod, Mary M. Gender bias in the prediction of college course performance. *J Ednl Measurement* 25(4), 1988, 321-31.

Pollio, Howard R and Humphreys, W. Lee. Grading students. *New Directions Teaching & Learning* (34), 1988, 85-97.

White, Kinnard and others. Rating teaching performance: The North Carolina teaching performance appraisal instrument. *Ednl Psy Measurement* 48(4), 1988, 1067-74.

ECONOMICS OF EDUCATION

Faraj, Abdulatif Hussein. Higher education and economic development in South Asian countries. *Hr Edn Rev* 21(1), 1988, 9-26.

Rumble, Greville. The economics of mass distance education. *Prospects* 18(1), 1988, 91-102.

Smart, John C. College influences on graduates' income levels. *Res Hr Edn* 29(1), 1988, 41-59.

LIBRARIES AND BOOKS

Sarkar, Subhash Chandra. Appeal to Indian Muslim intellectuals. *Mainstream* 27(13), 1988, 13-14.

ADULT EDUCATION

Houxiang, Lin and Yi, Zhang. University adult provision. *New Directions Continuing Edn* (37), 1988, 75-81.

Shah, Anupama and Siva Laxmi, K. Each one teach one—the Baroda experiment. *Indian J Adult Edn* 49(3), 1988, 26-36.

Shilu, Sun. Research and adult education. *New Directions Continuing Edn* (37), 1988, 117-124.

DISTANCE EDUCATION

Fordyce, Derek. Can engineering skills be developed through distance learning ? *Open Learning* 3(3), 1988, 27-32.

Zablan, Anthony B. Issues of quality and relevance in distance-teaching materials. *Prospects* 18(1), 1988, 75-83.

COMPARATIVE EDUCATION AND COUNTRY STUDIES

Kapferer, Judith L. Youth policy and the welfare state : Sweden and Australia in the 1980s. *Comp Edn* 24(3), 1988, 317-34.

Ornelas, Carlos. The decentralization of education in Mexico. *Prospects* 18(1), 1988, 105-113.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

BIOLOGICAL SCIENCES

Biology

1. Anbalagan, P. *Hydrobiology and benthic ecology of Kodaikkarl coastal sancturary (Southeast Coast of India).* Annamalai.

2. Kalyanasundaram, M. *Ecology and development of ome estuarine bivalue larvae.* Annamalai.

3. Kovale, Shekhar R. *Hydrobiological studies with pecial reference to distribution on accumulation of copper, nc, manganese and iron in biota sediment inshore waters of ortonovo.* Annamalai.

4. Malarvizhi, R. *Biological and biochemical investigaons in the inter-tidal solidar crab, Dotrilla myctinoides Milne Edwards) (Crustada : Decapoda : Beybipidae).* nnamalai.

5. Mohandas, R. *Biology, reproduction and larval development in the pistal shrimp, Alepheus malabaricus Fabricus 1755 (Crustacia : Decapoda : Alpheidae).* Annamalai.

6. Padmakumar, K. *Bio-active substances from marine algae and mangroves.* Annamalai.

7. Pragatheswaran, V. *Effects af zinc, copper and mercury on Ambassis commersoni Curier.* Annamalai.

8. Ramamurthi, T. *Occurrence, distribution and ecology of the human enteric pathogen, Salmonella Linguiers 1900 in Portonovo coastal environs (Southeast India).* Annamalai.

9. Ramasamy, A. *Studies on the effect of some environmental factors on seven species of prawn.* Annamalai.

10. Ramesh, S. *Studies on Escherichia coli (Mohgula) Castelani and Cholems (1919) from estuarine and gongrane bio/opes euend Portonovo (Southeast Coast of India).* Annamalai.

11. Rathore, Chinmoy. *An ecosystem approach based model for environmental impacts assessment.* Awadhesh Pratap. Dr. V.S. Shai, Reader, and Dr. R.N. Shukla, Department of Environmental Biology, Awadhesh Pratap Singh University, Rewa.

12. Shanmugam, A. *Studies on Pythia plicata (Gray) (Gastropoda : Putmoruta : Ellobbidae) from Pitchavaram margroves.* Annamalai.

13. Sophia, A. Josephine Antonette. *The effects of petroleum hydrocarbons on the backwater clan, Maretrix casta Chemmits : Some characteristics relevant to hydrocarbon monitoring.* Annamalai.

14. Srinivasan, P.V. *Studies on the pottatamid snail, Certithidea (Certithidropsille) cingulata (Onelin 1790) (Mollusca : Mesogastropoda).* Annamalai.

15. Subba Rao, G. *Biological effects of pesticides on the edible crab, Scylla sepurta (Forskal).* Annamalai.

16. Sundaramurthi, S. *Taxonomical, developmental and larval bioassay studies in the mangrove crab, Neoepisesarma (Munadium) tetragonum (Crapsidae : Brachyura : Decapoda).* Annamalai.

Biochemistry

1. Ashok Kumar. *Carbohydrate metabolism in nodules of pigeonpea (Cajanus Cajan L.).* Haryana Agrl.

2. Dasgupta, Sujay Kumar, *Molecular cloning of the ribosomal RNA genes of the cat fish, Heteropneustes fossilis.* Calcutta.

3. Kurian, Pawels. *Studies on polyphosphoinositides in rat brain.* Baroda.

4. Mali, Kishanlal. *Comparative study of various biochemical parameters used for the diagnosis and prognosis of malignancies.* Rajasthan. Prof. S.D. Bhardwaj, Department of Biochemistry, S.M.S. Medical College, Jaipur.

5. Nagarajan, S. *Biochemical studies in the central nervous system : Biochemical changes in experimental focal cerebral ischemia in primates.* Madras.

6. Potey, Gajanan Govind. *Amino acid pattern of body fluids in lathyrism and other non-infective neurological disorders.* Rani Durgawati. Dr. R.R. Bodhke, Head, Department of Biochemistry, Government Medical College, Jabalpur.

7. Rathnaswami, P. *Effects of tolbutamide and glucose metabolism on the functions of the beta cells of pancreas in rats.* Madras.

8. Sumathy, K. *Regulation and properties of NADP*-linked dehydrogenases in rat brain under hormonal conditions.* JNU. Prof. Nazma Zaheer Baquer, School of Life Sciences, Jawaharlal Nehru University, New Delhi.

9. Vanamala, C.R. *Studies on cellular and humoral immune responses in bancroftian filariasis.* Madras.

Microbiology

1. Arora, Maninder. *Protein enrichment of maize cobs by solid substrate fermentation.* Punjab Agrl.

2. Jain, Paras Kumar. *Production, purification and biological characterization of protein-A from S. aureus, its role in pathogenicity and therapeutics.* Panjab.

3 Selvakumar, R. *Effect of immunization with killed polio-virus vaccine on subsequent infection with poliovirus.* Madras.

4. Sharma, Arun Jaishanker. *Isolation and characterzition of rhizobia from pigeonpea (Cajanus cajan) root nodules.* Baroda.

Botany

1. Anjani Kumar. *Pharmacognostic evaluation of certain forest trees with special reference to tissue culture, anatomy, histochemistry and histoenzymological studies.* Visva Bharati. Dr. S.K. Datta, Friedrick Mieschar Institute, Ch-4002, Basel, Switzerland.

2. Chakrabarti, Subhra. *Cytological and biochemical aspects of cultured tissues during growth and regeneration and effect of mutagens on cabbage in vitro.* Calcutta.

3. Chaudhary, Sharfuddin. *Pathological and biochemical studies of stored maize seed infected with Penicilium species.* Mithila. Dr D.P. Chaudhary, Reader, Department of Botany, C.M.Sc. College, Darbhanga.

4. Geethamma, S. *Studies on South Indian Oleaceae.* Kerala. Dr. Kuruvilla George, Navunkuzha House, Angadical, P.O. Chengannur.

5. Gupta, Narinder Kumar. *Chemical mutagenesis in Papaver sommiferum, L.* Jammu. Dr. B.L. Koul.

6. Jethwani, Vidya. *Morphogenetic studies on apica metisems of some Polemoniales, Solanaceae,* Rajasthan. Dr (Mrs) A. Pillai, C-139, Dayanand Marg, Tilak Nagar, Jaipur.

7. John, Augustine Nallayil. *Chemical systematics o family Euphorbiaceae.* Baroda.

8, Kumutha, V. *Cytotaxonomy and biosystematics o South Indian Urbanecea.* Annamalai.

9. Nema, Balkrishna. *Study of induced cytomorphologica variations in relation to impovement of guava (Psidium guajava L.).* Rani Durgawati. Dr. S.K. Hasija, Prof. and Hea Department of Bio-Science, Rani Durgawati Vishwavidyalaya Jabalpur.

10. Saxena, Jyoti. *Mycoflora associated with the dr fruits and spices and their mycotoxin potential.* Kumaun. Dr. B.S. Mehrotra, Nainital.

11. Sharma, A.K. *Role of vesicular-arbuscular mycorrhi on physiology and productivity of chickpea, Cicer arietenum* Kumaun. Dr. B.S. Mehrotra, Nainital.

12. Singh, Abhay Kumar. *Ecophysiological studies o some varieties of rape seed (Brassica campestris L.).* Magadh.

13. Soni, Khemchand. *Studies in ecology, population differentiation, reproductive biology and cytology of some West Rajasthan species of Marsilea L.* Rajasthan. Dr. T.N. Bhardwaja, Department of Botany, University of Rajasthan Jaipur.

14. Srivastava, Mukund Prasad. *Cytomorphologica studies in fern flora of Ramgarh (Hazaribagh) and adjoinin areas.* Magadh.

15. Uma Devi, K. *Studies on litter decomposition b microbes.* Osmania.

16. Venkatanarasimhan, S. *Some physiological and biochemical studies in Capsicum annum L. under differentia irrigation stress.* Madras.

17. Viji Stella Bai, G. *Cytogenetical studies on naturall occurring beneficial cytotypes of cashewnuts (Anacardiu occidentale L.).* Annamalai.

Zoology

1. Bechamin, K.V. *Studies on the ecological and nutritional factors influencing the physiology of reproduction i silkworm, Bombyx mori L.* Kerala. Dr. S. Krishna Swami,

Vice Chairman, AISRCC, H. No. 33, Raj Mahal Vilas, Extension II, Dollar Colony, Bangalore.

2. .Benjamin, Dorcus Benjamin G.T. *Age, species and group determination of forensic blood stains, employing modern techniques under different emvironmental conditions.* Osmania.

3. Chidambaranathan, R. *A field study of the effect of $CuSO_4$ on the movement and compartmentation of copper in the water reservoirs, Annamalainagar, Tamil Nadu.* Annamalai.

4. Chungkham, Sarojnalini Devi. *Studies on the biochemical composition and nutritive value of some fresh and processed fishes of Manipur.* Manipur. Dr. W. Vishwanath Singh, Asstt. Prof., Department of Life Sciences, Manipur University, Imphal.

5. Gayathri Rao, Tiruvalloor Viavoori. *Systematic and some aspects of ecology of stomatopod crustaceans of Visakhapatnam Coast.* Andhra.

6. Indira, B. *Studies on air-breathing fishes, Macropodus cupanus (Cuv & Val) and Anabas testudineus (Bloch).* Kerala. Shri K.G. Padmanabhan, Reader (Retd), Department of Aquatic Biology and Fisheries, University of Kerala, Trivandrum.

7. Jayakumar, C. *Effects of dimethoate (ragor) on the accessory reproductive gland, testis, fat body, haemolymph, neurosecretory cell and corpus alatur in Odentopus caricorinis (Dist) (Hemiptera : Pyrrho-corridae).* Annamalai.

8. Padman, D. *Studies on biochemical and histochemical aspects of cysticercus of Taenia hydatigena Pallas 1766.* Osmania.

9. Patra, Bidhan Chandra. *Nutritional role of some supplementary diets in relation to growth performance and associated physiological changes in Anabas testudineous (Bloch).* Viswa Bharati. Dr. Arun Kumar Ray, Department of Zoology, Viswa Bharti, Shantiniketan.

10. Plaha, Rajvinder Singh. *Pesticide induced effects in ome tissues of a teleost fish.* HS Gour, Dr. Y.N. Sahai, Reader, Department of Zoology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

11. Rajasekaran, S. *Neuroendocrine control on the funcional differentiation of the penial complex in Cryplozona elonperi (Deshayes) (Mollusca), Gastropoda : Pulmonata.* nnamalai.

12. Rajendra Mahav, B. *Ecobiological studies of survival alue to the grey pelican at Nelapattu Bird Sanctuary, A.P.* smania.

13. Rath, Rita. *Utilization and metabolism of sterols and ir inhibition in Heliothis armigers (Hubner).* Delhi.

14. Saha, Samita, *Reproductive histophysiology and control rough chemosterilization of an avian pest, Lonchura malabrica.* lcutta.

15. Sarkar, Pradip Kr. *Studies on soil nematodes as luenced by industrial pollutants.* Burdwan. Prof. M.C. ukhopadhyay, Department of Zoology, University of rdwan, Burdwan.

16. Shankar, Reddy, M. *Studies on the factors of selection nesting site by Apis dorsata F.* Bangalore. Dr. C. Chandekhara Reddy, Department of Zoology, Bangalore Unisity, Bangalore

17. Sharma, Rajesh, *Haematological and biochemical ies of Streptpoelia decuocto treated with insecticides.* Rajasthan. Dr. P. Bakre, Department of Zoology, University of Rajasthan, Jaipur.

18. Soam Prakash. *Studies on the comparative account of intra hepatic vascular channels in certain Indian vertebrates with special reference to their architecture.* Dayalbagh, Dr. A.K. Sinha, Reader and Head, Department of Zoology, Dayalbagh Educational Institute, Dayalbagh, Agra.

19. Vasudevan, S. *Studies on the penaeid prawn seed resources of Ennore estuary (Madras Coast) with a note on penaeid seed of dugon creek (little) (Andamans).* Madras.

20. Velayudhan, R. *Studies on the bio-ecology of some parasitoids of Pentatomids from Southern India (Insecta : Hemiptera : Heteroptera : Pantatomidae).* Madras.

21. Vishnu Murthy, T. *Effect of magneto therapy and Abrus precatorius (Lin) on the reproductive physiology of female albino rats with particular reference to certain biochemical and histological parameters.* Osmania.

Medical Sciences

1. Gupta, Vishwanath Laxmanprasadji. *Zinc deficiency in sickle cell anaemia, its effect on cell membrane, course of disease and its future place in management.* Nagpur. Dr. B S. Chaubey, Government Medical College, Nagpur.

2. Mukhopadhyay, Patralekha. *Certain lipid fraction and lactic acid concentration in blood of young Bengalee students under different grades of exercise.* Calcutta.

3. Pathak, Deena Nath. *Biochemical and electrophysiological study of iron induced experimental epilepsy.* JNU. Prof. Rameshwar Singh, School of Life Sciences, Jawaharlal Nehru University, New Delhi.

4. Ramakrishna Iyer, Rajalakshmi. *Macophage and lymphocyte functions in human tuberculosis.* Madras.

5. Ranganathan, T.S. *The arterial supply of ulnar nerve in human beings.* Madras.

Agriculture

1. Abdul Quayum. *Studies on integrated nutrient supply system in cereal based crop sequence (maize-wheat).* Birsa Agrl.

2. Anand Singh. *Genetic analysis and selection criteria under salinity in bread wheat (Triticum aestivum L. em. Thell).* Haryana Agrl.

3. Basu, Biplab. *Studies on agronomy of sunflower : Its cultural practices and water requirement for alluvial and lateritic soil of Eastern India.* Calcutta.

4 Chakrabarti, Deb Kumar. *The ergonomic evaluation and design of work methods and implements used by Indian agricultural workers.* Calcutta.

5. Gade, Wasudeo N. *Physiology of Triticale : Studies in the changes of membrane composition under stress conditions.* JNU. Prof. Jaweed Ashraf, School of Life Sciences, Jawaharlal Nehru University, New Delhi.

6 Goverdhan, V. *Studies on physico-chemical and mineralogical properties of normal and salt-affected soils in command areas of Marathwada and their reclamation.* Marathwada Agrl. Dr. C.P. Ghonshikar, Associate Dean and Principal, College of Agriculture, Parbhani.

7. Kahlon, Gurbakhash Singh. *Guava (Psidium quajava L.) improvement—variability pattern in seedling populations.* Punjab Agrl.

8. Khidhair, Adnan Abbas. *On some statistical aspects of experiments on cultivators field.* Rajasthan. Dr. B.D. Tikkiwal, Retd. Prof., B-45, Dev Nagar, Tonk Road, Jaipur.

9. Khola, Om Pal Singh. *Intercopping studies of Brassica campestris L. in oilseed Brassicas.* Haryana Agrl.

10. Maharana, Giridhari. *Fertility capability classification in relation to taxonomy of some wetland rice of Orissa.* Orissa Agrl. Dr. S.S.K. Nanda, Prof., Department of Soil Science and Agricultural Chemistry, College of Agriculture, Bhubaneswar.

11. Mir, G.N. *Genetic analysis of resistance to Philippine races of bacterial blight, Xanthomonas campestris PV. oryzae (Ishiyama, 1922) dye 1978, in some cultivars of rice (Oryza sativa L.).* Sher-e-Kashmir, Dr. G.S. Khush, Plant Breeder, IRRI, Philippines.

12. Mishra, Sachidananda. *Studies on genetic variability and diallel analysis in brinjal (Solanum melongena L.).* Orissa Agrl. Dr. R.S. Mishra, Prof., Department of Horticulture, College of Agriculture, Bhubaneswar.

13. Murugesan, G. *Studies on puffed rice.* Mysore. Dr. K.R. Bhattacharya, SUPRITI, 61, V Main Road, Jayalakshmipuram, Mysore.

14. Prakash Chand. *Growth analysis and productivity of cotton (Gossypium hirsutum L) varieties as affected by sowing dates and N rates.* Punjab Agrl.

15. Prasad, Nawal Kishor. *Studies on soil fertility under different cropping systems.* Birsa Agrl.

16. Roy, Shukdeo. *Comparative evaluation of some graftage techniques in mango (Mangifera indica L.) propagation.* Rajendra Agrl.

17. Sandhyarani, M.R. *Studies on the rheological properties of rice.* Mysore. Dr. K.R. Bhattacharya, SUPRITI, 61, V Main Road, Jayalakshmipuram, Mysore.

18. Singh, Birendra Kumar. *Post-harvest studies of mango (Mangifera indica L).* Rajendra Agrl.

19. Singh, Kamal Kumar. *Investigation on weed suppression through canopy and herbicidal management in summer sown pigeon pea (Cajanus cajan (L) Millsp) based intercropping systems.* C.S. Azad. Dr. A.N. Tiwari.

20. Singh, Lakshmi Narayan. *Influence of gamma irradiation of seeds on growth, sex-expression and yield in bitter gourd, Momordica charantia (Linn).* C.S. Azad. Dr. G.S. Gaur.

21. Sinha, Murli Manohar. *Inheritance of submergence, tolerance and important yield contributing traits in rainfed lowland rice.* Rajendra Agrl.

22. Sinha, Ram Binod. *Studies on the effect of pyrite in combination with organic manures in relation to iron, zinc, sulphur and phosphorus nutrition of crops in calcareous soil.* Rajendra Agrl.

23. Sreeramamurthy, K. *Effects of irrigation water quality on soil-rice inter-relationship.* Annamalai.

Government of India

Ministry of Human Resource Development (Department of Education)

AUSTRIAN GOVERNMENT SCHOLARSHIPS 1989-90

Applications (in duplicate) are invited on plain paper in the proforma given below from Indian nationals for the award of an unspecified number of scholarships offered by the Government of Austria for the course 'Tourism Management' only.

I. Qualifications and Essential Experience : (i) Graduate with 60% marks or more: (ii) Diploma in Tourism or three years practical experience in Tourism after graduation as on 1st June, 1989 (Trade/Travel Agencies, Tourist Management, etc.) at least at the Junior Manager status; (iii) Good knowledge of English or an European language.

II. Age : Candidates should be between 22 to 30 years as on 1.10.1989 (relaxation in upper age limit upto 2 years will be given in the Scheduled Caste/Scheduled Tribe candidates).

III. Value of Scholarships : The full scholarship includes : Fee for registration, medical inspection, tuition-accommodation in double rooms, boarding excursions and certain special events, health insurance, final examination.

IV. Passage Cost : Travel expenses under Management in Tourism from India to Austria and back will have to be borne by the selected candidate or his/her employer/sponsor. Subject to availability of funds, the passage cost may be met by the Government of India provided the candidate is eligible under the rules.

During this session the "Hotel Management" Course is not covered under the Austrian Government Scholarship Scheme and is open for self-paying students only. The total fees for the course amount of Austrian Schillings 134.774 (Approx. US$ 10.000)- The candidates who cannot afford the specified amount to be incurred as tuition fees, boarding and lodging, etc. need not apply. They are required to send their applications direct to the Institute of Tourism and Hotel Management, Schloss, Kiesshelm, A-5071, Siezenheim near Salzburg, Austria. The candidate should be : (i) 10+2 or equialent examination with 60%

marks or above; (ii) 3 years diploma in Hotel Management with 55% marks or above from a recognised catering/Technology Institute in the country; and (iii) Good knowledge of English or an European language and should have at least one year's practical experience as on 1st May, 1989 in the line after obtaining prescribed qualifications. Candidates should be between 22 to 30 years.

Note : (i) Equivalent Foreign degree will be considered; (ii) Candidates who have already been abroad for study/training/specialization either on a scholarship/or on their own, are eligible to apply only if they have been in India for at least three consecutive years after their return from abroad. Applications of candidates who are abroad will not be considered, (iii) Where Grades are mentioned, the candidate must indicate to the conversion formula adopted by the University/Institution; (iv) Candidates should have sufficient knowledge of donor country, i.e., Austria as well as of India; (v) Applications of candidates in subject field other than those specified above will not be considered; (vi) Employed persons must send their applications through their employers with 'No Objection Certificate' in time failing which applications will not be considered; (vii) Candidates who do not possess the requisite qualifications need not apply; (viii) Two copies of recent passport size photograph should be affixed on the right hand corner of the format.* (ix) Applications must be accompanied by (a) Medical certificate signed by a Pubiic Health Officer; (b) Recommendation letter of the employer, if employed and a detailed description of the job held by the candidates so far as well as the proposed employment after the course; (c) Postal Order of Rs. 5/- (Rs. 1.25 only in the case of Scheduled Caste/Scheduled Tribes and other backward candidates); (x) Applications which do not contain postal order and other required documents will not be considered.

Application received late will not entertained.

S.No. (ix) above is meant for 'Tourism Management' course only.

FORMAT OF APPLICATION

A recent passport
size photograph

1. Name of the Scholarship Scheme
2. (a) Subject (b) Sub-Subject
3. Name of the Candidiate (in Block letters) with full mailing address
4. Father's Name
5. Date of birth and the State to which the candidate belongs
6. Whether a member of SC/ST or a tribal or aboriginal community if so, give full particulars
7. Academic record starting from High School/Higher Secondary

Name of the Board/ University/ Institution	Exam(s) passed	Year of passing	Division/Class with position, if any*	%age of marks obtained & position, if any	Subjects taken

*(In case no Division/Class is awarded and only grading is done, the conversion formula adopted may be mentioned as well as exact percentage of marks)

8. Details of Professional Practical Training and Research experience specifying the period and number of papers published, previous employment with the name and date of employment, if any.
9. Nature of the present employment with date of appointment, designation and the name and address of the employers.
10. Have you been abroad, if so, give full particulars of the country and the period. Also mention the year of return to India.
11. Proposed programme of study/research/training specifying (i) the work at present engaged in; (ii) future plans prospects after the proposed studies/research; (iii) nature and programme of study/research desired; (iv) how are these related to the technical or economic development of India.
12. Number and date of Crossed Postal Order of Rupees Five (Rupee One and paisa twenty five only in case of SC/ST candidates etc.) attached with the form.

Note : Employed persons must send their applications full sponsored by their employers. However, advance applications complete in all respects will be considered provisionally pending sponsorship by employers. Applications for the course of Tourism Management must be sent to the Assistant Educational Adviser, Ministry of Human Resource Development, (Department of Education), External Scholarships Division. E.S. 5 Section. Room No. 517, 'B' Wing, Shastri Bhavan, New Delhi-110 001 by 28th April, 1989.

Place :

(Signature of Candidate)

Date :

davp 88/931

CLASSIFIED ADVERTISEMENTS

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

Advt. No. D-8/89-90

CENTRE OF STUDIES IN RESOURCES ENGINEERING

INVITES

Applications from citizens of India for the following posts of Research Engineer/Scientist and Senior Research Assistant, in the prescribed form obtainable free of charge from the Registrar, Indian Institute of Technology, Powai, Bombay 400 076, on request accompanied by a self-addressed envelope (25 cm × 10 cm). Some of the appointments would be on permanent basis and others on contractual basis for a period upto five years. Persons employed in Government/Semi-Government organizations or Educational Institutions should apply through proper channel. Indian candidates abroad may apply on plain paper in duplicate. The posts carry allowances such as D.A., H.R.A., C.C.A. as per rules of the Institute which at present correspond to those applicable to the Central Government employees stationed at Bombay. Depending on qualifications and experience, a higher salary may be offered. If a candidate is not found suitable for the post he/she has applied, he/she may be considered for a lower post. Candidates called for interview will be paid first class rail fare from the place of their residence to IIT Bombay and back by the shortest route.

Some posts are reserved for candidates belonging to the SC/ST communities.

The Institute has an extensive Library, a Central Workshop, Cyber 840 main-frame Computer and a number of mini and micro computing facilities.

The Centre of Studies in Resources Engineering (C.S.R.E.) has been established in 1976 with the objective of developing techniques for analysis of Remotely Sensed data with applications in Natural Resources identification, exploitation, monitoring and management. The Centre also organises continuing education programmes to train inservice engineers and scientists of User agencies in this emerging area.

The centre is equipped with Sophisticated Instrumentation Systems for research, viz., Vax 8250 Computer with DIPIX image processing system, AC-I automatic Cartographic system with data general host computer, Colour image digitizer, XRF for rapid analysis of samples etc.

AREAS OF SPECIALISATIONS

Group A : (Remote Sensing' Image Processing, Geographic Information System, Digital Cartography)

Group B : (Water Resources, Geosciences / Mineral Resources, Terrain Evaluation and Land Use, Forestry, Pedology).

(1) Cheif Research Engineer/Scientist

Scale of Pay : Rs. 1500-60-1800-100-2000-125/2-2500

(2) Principal Research Engineer/Scientist

Scale of Pay : Rs. 1500-60-1800-100-2000

The emoluments on the minimum of the scale, excluding House Rent Allowance is Rs. 3999/-.

Qualifications and Experience

Excellent academic record with Doctorate degree in the appropriate field from a recognised University/Institute, a minimum of 10 years experience in a responsible capacity in teaching/research/industry and specialized knowledge in one or more areas specified in Groups A and/or B, (either a major in Group A with experience in areas (Group B) or vice-versa). Professional/Scientific work of outstanding merit and experience of carrying out independent research are desirable.

(3) Senior Research Engineer/Scientist

Scale of Pay : Rs. 1200-50-1300-60-1900

The emoluments on the minimum of the scale, excluding House Rent Allowance is Rs. 3593/-

Qualifications and Experience

Same as mentioned above for posts at Sr No. 1 and 2 but with about 5 years' experience.

(4) Research Engineer/Scientist

Scale of Pay : Rs. 700-40-1100-50-1600

The emoluments on the minimum of the scale, excluding House Rent Allowance is Rs. 2430/-

Qualifications and Experience

A doctorate in Applied Science or Master's degree in an appropriate field of Engineering/Technology with a first class at Bachelor's degree and/or Master's degree level. A Minimum of 1 to 2 years experience in areas (Groups A and/or B).

All the Above Pay Scales are Likely to be Revised Shortly.

5. Senior Research Assistant

The post is temporary for a period of one year and is extendable upto a maximum period of five years.

Scale of Pay : Rs. 2000-60-2300-EB-75-3200 (Revised).

Total emoluments on the minimum of the scale, including House Rent Allowance is Rs. 2810/-.

Qualification and Experience

B. Tech./M. Tech. or M.Sc. in an appropriate field as detailed in Groups A and/or B with a first class at Bachelor's Degree and/or Master's degree level.

Candidates who wish to apply for the post of Senior Research Assistant may apply on plain paper stating full name and address, date of birth, details of educational qualification etc. with copies of certificates addressed to the Registrar, Indian Institute of Technology, Powai, Bombay 400 076.

Last date to supply the prescribed application form is 28-4-1989. Last date to receive the completed application through proper channel is 5-5-1989.

REGISTRAR

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RABINDRA BHARATI UNIVERSITY
CALCUTTA

Applications are invited in prescribed form for the under-mentioned posts :

A. Faculty of Arts

- (i) Reader in Bengali Language and Literature —1 post
- (ii) Lecturer in Bengali Language and Literature —1 post
- (iii) Lecturer in Sanskrit —2 posts

B. Faculty of Fine Arts

- (i) Lecturer in Vocal Music—1 post (specialization : Khayal (theory and practice) or Bengali song (theory & practice) excluding Rabindra Sangeet.
- (ii) Lecturer in Manipuri Dance

C. UGC Junior Research Fellowships (Only for NET qualified candidates)

- (a) Tagore Cell—2
- (b) **Faculty of Arts**
    - (i) Vedic Studies (Sanskrit Department) —4
    - (ii) Philosophy —1
    - (iii) English —1
- (c) **Faculty of Fine Arts**
    - (i) Drama —1
    - (ii) Vocal Music —1

Academic Qualifications

(i) For Lectureship : A consistently good academic record with at least 55% marks in the Master's Degree and a good regular Honours Degree in the relevant/allied subject and a Research Degree (Preferably Ph.D.) of a recognized University.

(ii) For Readership : In addition to the qualifications prescribed for Lectureship, a Ph.D. Degree or equivalent published work and five years' experience of teaching (at least three years' as Lecturer) and/or research.

The academic qualifications may be relaxed for candidates having outstanding publications to their credit, but candidates with less than 55% marks in the Master's Degree will not ordinarily be considered.

In the Faculty of Fine Arts, the minimum academic qualifications may be relaxed for outstanding performers and eminent artists. Other things remaining the same, preference will be given to SC/ST candidates.

Medium of Instruction : English and Bengali.

Upper age limit for Lectureship is ordinarily 35 years;

Upper age limit for Readership is ordinarily below 50 years.

Applications (six copies) with Indian Postal Order of Rs. 20/- payable to RABINDRA BHARATI must reach the undersigned on or before **24-4-1989.**

R.C. Mitra
REGISTRAR

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RAVISHANKAR UNIVERSITY
RAIPUR

Employment Notification No. 2/89

Last date of receipt of completed Application Form in the University Office 4-5-89 within the working hours of the University.

Applications are invited for appointment to the following Posts in the University Teaching Departments :

Sl. No.	Department	Category & Number of Posts			Requirements besides Qualification for different categories of posts as per Ordinance 4.
		Professor	Reader	Lecturer	
1	2	3	4	5	6
SEVENTH PLAN POSTS					
1.	Electronics	1	1	2	(P, R & L) M.Sc./M.E./M. Tech. (Electronics) M.Sc. (Applied Physics in Radio Physics and Electronics).

Scale of Pay : Professor : Rs. 4500-150-5700-200-7300/-
Reader : Rs. 3700-125-4900-150-5700/-
Lecturer : Rs. 2200-75-2800-100-4000/-

1. Details of qualifications and the prescribed application form can be obtained from the Registrar by sending Rs. 5/- Depositing cash or sending crossed Bank Draft together with a self-addressed envelope of 23 x 11 cm. size bearing postal stamp worth Rs. 7.20 Fee for application form will not be accepted by money order or postal order.
2. The requirements regarding minimum percentage of marks shall be relaxed upto 5% in the case of SC/ST Candidate. 15% SC, 7.5% ST of Lecturers post shall be reserved to SC/ST Candidates.
3. Application (7 copies) with complete details (Bio-data) will be acceptable, on plain paper also, but the application in prescribed form will have to be submitted at the time of interview.

Dr. M.P. Agnihotri
REGISTRAR

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RAVISHANKAR UNIVERSITY
RAIPUR

Employment Notification No. 1/89

Last date of receipt of completed application form in the University Office will be **4.5.89 within the working hours of the University.**

Applications are invited for appointment to the following posts in the University Teaching Departments :

Sl. No.	Department	Category & Number of Post			Requirements besides Qualification for different categories of posts as per Ordinance 4.
		Professor	Reader	Lecturer	
1	2	3	4	5	6
SEVENTH PLAN POST					
1.	Anthropology	—	—	1	Specialization in Pre-Historic Anthropology.
2.	Chemistry	—	1	—	Specialization in Spectroscopy/Coordination Chemistry/Solid State Chemistry/Nuclear Chemistry/Physical Organic Chemistry.
3.	Geology	—	—	1	M.Sc. Geology or M.Tech Applied Geology, Specialization in Aerial Photo-Geology/Remote Sensing/Geohydrology.
4.	Physics	—	1	—	Specialization in Nuclear Physics/Elementary Particle Physics/Astrophysics
5.	Physical Education	—	1	1	(Open)
OTHERS					
1.	Anthropology	—	1	1	Specialization Reader-Social Anthropology, Lecturer-Physical Anthropology
2.	Economics	—	—	1	Econometrics/Statistics
3.	Geology	—	1	—	Open
4.	Law	—	1	—	Constitutional/Administrative Law.
5.	Physics	—	—	1	Open
6.	Psychology	1	—	3	Professor-(Open) Lecturer-1 Social/Industrial Psychology Lecturer-2 (Open)
7.	Centre for Regional Studies & Research	1	—	—	Inter disciplinary to Coordinate research in Linguistics/Anthropology/Sociology/Psychology/Economics/History.
8.	Statistics	—	—	1	Open
	Pt. Sunder Lal Sharma Peeth	1	—	—	Rural Sociology/Peasent Culture

Scale of Pay : Professor : Rs. 4500-150-5700-200-7300/-

Reader : Rs. 3700-125-4900-150-5700/-

Lecturer : Rs. 2200-75-2800-100-4000/-

1. Details of qualifications and the prescribed application form can be obtained from the Registrar by sending Rs. 5/- by crossed Bank Draft together with a self-addressed envelope of 23×11 cm. size bearing postal stamp worth Rs. 7.20. Fee for application form will not be accepted by money order or postal order.
2. The requirements regarding minimum percentage of marks shall be relaxed upto 5% in the case of SC/ST candidate 15%, 7.5% of Lecturers post shall be reserved to SC/ST candidates, respectively.
3. Application (7 copies) with complete details (Bio-data) will be acceptable, on plain paper also, but the application in prescribed form will have to be submitted at the time of interview.
4. Qualifications etc. as on the date of interview will be taken into consideration while making the selection.
5. Advance increment in the pay scale may also be sanctioned to outstanding candidates.
6. Application on prescribed form with completed details showing the Employment Notification No. & Specialization required must reach the Registrar's Office on or before **4-5-89.**
7. The Candidates who have applied for the above posts in response to our previous employment notification will have to apply fresh.

Dr. M.P. Agnihotri
REGISTRAR

PUNJABI UNIVERSITY
PATIALA
CORRIGENDUM

In reference to Advertisement No. 74 / Rect. / PRO. March, 1989 which appeared on 17-3-1989, it is notified that the last date for receipt of applications **has been extended upto 9 May, 1989** in the case of LECTURERS. Application **forms would be available** on or after 25-4-1989.

REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY

BOMBAY

Advertisement No. D-7/89-90

ADVANCED CENTRE FOR RESEARCH IN ELECTRONICS

INVITES

Applications from citizens of India for the following posts of Research, Design and Development Engineers/Scientist and Senior Research Assistants, in the prescribed form obtainable free of charge from the Registrar, Indian Institute of Technology, Powai, Bombay 400 076, on request accompanied by a self-addressed envelope (25 cm x 10 cm). Some of the appointment would be on the permanent basis and others on contractual basis. Persons employed in Government/Semi-Government organizations or Educational Institutions should apply through proper channel. Indian candidates abroad may apply on plain paper in duplicate. The posts carry allowances such as D.A., H.R.A., C.C.A. as per rules of the Institute which at present correspond to those applicable to the Central Government employees stationed at Bombay. Depending on qualifications and experience, a higher salary may be offered. If a candidate is not found suitable for the post he/she has applied, he/she may be considered for a lower post. Candidates called for interview will be paid first class rail fare from the place of their residence to IIT Bombay and back by the shortest route.

Some posts are reserved for candidates belonging to the SC/ST communities.

The Institute has an extensive Library, a Central Workshop Cyber 840 main frame Computer and a number of mini and micro computing facilities.

The Advanced Centre for Research in Electronics (ACRE) has excellent facilities for the synthesis and characterization of magnetic materials for communication and memory applications and for fabrication and testing of microwave integrated circuits. It has also got a well equipped laboratory for optical image processing and holography.

AREAS OF SPECIALISATIONS

(1) Magnetic Materials for Communications and Memory Applications.

(2) Microwave Integrated Circuits, Computer Aided Design.

(3) Electronics and Electroplating technique for Microwave Electronics Applications.

(4) Signal Processing.

1. Chief Research Engineers/Scientist

Scale of Pay : Rs. 1500-60-1800-100-2000-125/2-2500.

2. Principal Research Engineer/Scientist

Scale of Pay : Rs. 1500-60-1800-100-2000.

The emoluments on the minimum of the scale, excluding House Rent Allowance is Rs. 3999/-.

Qualifications and Experience

Excellent academic record with doctorate degree in the appropriate field from a recognised University/Institute, minimum 10 years experience in a responsible capacity in teaching/research and development/Industry and specialised knowledge in one or more relevant fields. Candidates should have a strong research interest and should have capacity to handle sponsored research/consultancy and offer leadership to young scientists / engineers working in the group.

3. Senior Research Engineer/Scientist

Scale of Pay : Rs. 1200-50-1300-60-1900

Total emoluments on the minimum of the scale, excluding House Rent Allowance is Rs. 3593/-.

Qualifications and Experience

Consistently good academic record with a Doctorate in the relevant field. About five years experience in teaching and/or research and development.

Candidates not possessing a Ph.D. may also be considered if they have to their credit equivalent published research work or design/development work of high standard either in an Institution or in an industry.

4. Research Engineer/Scientist

Scale of Pay : Rs. 700-40-900-50-1600

Total emoluments on the minimum of the scale, excluding House Rent Allowance is Rs. 2430/-.

Qualifications and Experience

A Doctorate in Science or a Master's Degree in an appropriate field in Engineering/Technology with a very good academic record and a first class at Bachelor's degree and/or Master's degree level.

Minimum one year or relevant experience in teaching/research.

All the above pay scales are likely to be revised shortly.

5. Senior Research Assistants

The post is temporary for a period of one year and is extendable upto a maximum period of five years.

Scale of Pay : Rs. 2000-60-2300-EB-75-3200 (Revised)

Total emoluments on the minimum of the scale, including House Rent Allowance is Rs. 2810/-.

Qualifications and Experience

Good Bachelor's degree or Master's degree in the appropriate field with good academic record. Experience in the relevant field is desirable.

Candidates who wish to apply for the post of Senior Research Assistant may apply on plain paper stating full name and address, date of birth, details of educational qualifications, experience etc., with copies of certificates, addressed to the Registrar, Indian Institute of Technology, Powai, Bombay 400 076.

Last date to supply the prescribed application forms —28-4-89.

Last date to receive the completed application through proper channel is —5-5-89.

REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY

BOMBAY

Advertisement No. D-9/89-90

COMPUTER AIDED DESIGN CENTRE

INVITES

Applications from citizens of India for the following posts of Research, Design and Development Engineers/Scientists and Senior Research Assistants in the prescribed form obtainable free of charge from the Registrar, Indian Institute of Technology, Powai, Bombay -400076, on request accompanied by a self-addressed envelope (25 cm x 10 cm). Some of the appointments would be on permanent basis and others on contractual basis for a period upto 5 years. Persons employed in Government/Semi-Government organizations or Educational Institutions should apply through proper channel. Indian candidates abroad may apply on plain paper in duplicate. The posts carry allowances such as D.A., H.R.A., C.C.A. as per rules of the Institute which at present correspond to those applicable to the Central Government employees stationed at Bombay. Depending on qualifications and experience, a higher salary may be offered. If a candidate is not found suitable for the post be/she applied, he/she may be considered for a lower post. Candidates called for interview will be paid first class rail fare from the place of their residence to IIT Bombay and back by the shortest route.

Some posts are reserved for candidates belonging to the SC/ST communities.

The Institute has an extensive Library, a Central Workshop, Cyber 840 main frame Computer and a number of mini and micro computing facilities.

CAD Centre is equipped with a NORSK DATA 560/CX Super mini Computer System with coloured graphics and plotting facilities and Real Time computing features, a Nexus 3000 work-station and a number of IBM-PC compatibles.

The Computer Aided Design Centre (CAD Centre) at I.I.T. Bombay has been established with an aim to inculcate CAD culture in the Indian Chemical and Metallurgical Industry. The Centre's immediate objectives include carrying out research and development, and establish training/education facilities for CAD application engineers, to establish CAD software exchange system through software library, and to provide expert assistance to the process industry to solve their debottlenecking problems, energy conservation problems, etc. using the concepts of mathematical modelling, simulation, optimization, computer control and expert systems.

The CAD Centre offers excellent growth potential to persons with innovative ideas.

AREAS OF SPECIALIZATION: Modelling; Simulation; Controls; Thermodynamics.

1. Chief Research Engineer (Chemical)

Scale of Pay: Rs. 1500-60-1800-100 2000-125/2-2500

2. Principal Research Engineer (Chemical)

Scale of Pay: Rs. 1500-60-1800-100-2000

Total emoluments on the minimum of the scale (excluding House Rent Allowance) is Rs. 3999/-

Qualifications and Experience

Excellent academic record with Doctorate degree in Chemical Engineering from a recognised University/Institute, minimum 10 years experience in a responsible capacity in teaching/research and development/industry and specialised |knowledge in one or more relevant areas of specialization. Professional/Scientific work of outstanding merit, experience of carrying out independent research and development, managing software development projects for chemical processes, and industrial experience in CAD are desirable. The candidate should have demonstrated qualities of leadership.

3. Senior Research Engineer (Chemical/Metallurgical)

Scale of Pay: 1200-50-1300-60-1900

Total emoluments on the minimum of the scale (excluding House Rent Allowance) is Rs. 3593/-.

Qualifications and Experience

Consistently good academic record with a Doctorate in the relevant field. About five years experience in research and development.

Candidates not possessing a Ph.D. may also be considered if they have to their credit equivalent published research work/design/development work of high standard either in an Institution or in an industry.

Ability to design and organise large modular computer programs in relevant fields of CAD is essential. Ability to interact with clients/sponsoring agencies to generate innovative research ideas is desirable.

4. Research Engineer (Chemical/Metallurgical)

Scale of Pay: Rs. 700-40-900-50-1600

Total emoluments on the minimum of the scale (excluding House Rent Allowance) is Rs. 2430/-

Qualifications and Experience

A Doctorate or a Master's degree in the relevant field with a very good academic record and a first class at Bachelor's degree and/or Master's degree level. Minimum one year or relevant experience in computer applications. Should possess an excellent engineering background. Proficiency with FORTRAN 77/PASCAL/C is essential. Ability to interact with clients/sponsoring agencies, to generate innovative research ideas are desirable.

All the above Pay Scales are likely to be revised shortly

5. Senior Research Assistants

The post is temporary for a period of one year and is extendable upto a maximum period of 5 years.

Scale of Pay: Rs. 2000-60-2300-EB-75-3200 (Revised)

Total emoluments on the minimum of the scale, including House Rent Allowance is Rs. 2810/-.

Qualifications and Experience

Master's degree on 5-year co-operative integrated M.Tech. degree or

B.Tech. with 1 to 2 years experience in relevant area with an excellent engineering background and working knowledge of Design, Coding, Debugging, and Testing of Computer Program. Proficiency in FORTRAN 77/PASCAL/C is required. Knowledge of numerical technique and structural programming concepts is desirable.

Candidates who wish to apply for the post of SRA may apply on plain paper stating full name and address, date of birth, details of academic qualifications and experience with copies of certificates, testimonials, special contributions such as development of specific areas, software, hardware etc. addressed to the Registrar, Indian Institute of Technology, Powai, Bombay-400 076.

Last date to supply prescribed application from is	**—28.4.1989**
Last date to receive the completed application form through proper channel is	**—5.5.1989**

REGISTRAR

SHER-E-KASHMIR

UNIVERSITY OF AGRICULTURAL SCIENCES & TECHNOLOGY

Advertisement No. 01/1989

Dated : 31-3-1989

Application on prescribed form are invited for the following categories of posts :

I. Professor/Chief Scientist/Associate Director
(UGC Pay Scale 4500-7300)

(1) Animal Health (2) Veterinary Medicine/Surgery (3) Pomology (4) Olericulture (5) Agronomy (6) Environmental Sciences (7) Instrumentation (8) Associate Director Research (Agriculture) (9) Associate Director Research (Animal Sciences & Livestock Farms).

Qualifications and Experience

(a) **Essential :** (i) Doctorate Degree n the concerned subject; (ii) 12 years eaching and/or research experience not below the rank of Assistant Professor or equivalent of which 5 years should be in he rank of Associate Professor or equialent; (iii) Good research experience vidence by published research work.

(b) **Desirable :** Experience to provide leadership in the concerned discipline/subject.

Note : (i) For Animal Health candidates having requisite qualifications and experience in the field of Veterinary Microbiology / Pathology/Parasitology / or Veterinary Public Health will be eligible.

(ii) For Associate Director Agriculture, candidate should have requisite qualifications and experience in Crop Production/Improvement and for Associate Director Animal Sciences & LF the candidate should have requisite qualification in Animal Breeding or Nutrition or Management or Reproduction.

(See also General Note)

II. Associate Professor/Senior Scientist
(UGC Pay Scale 3700-5700)

(1) Agronomy (2) Soil Science (Fertility/Chemistry) (3) Agricultural Meteorology (4) Floriculture (Aromatic & Medicinal Plants) (5) Plant Breeding & Genetics (6) Fruit Technology (7) Pomology (8) Olericulture (9) Agricultural Entomology (Field Crops/Nematology) (10) Agricultural Economics (11) Sericulture (Silkworm Breeding / Rearing) (12) Forestry (13) Veterinary Pathology (14) Animal Nutrition (15) Veterinary Physiology (16) Veterinary Surgery Radiology (17) Poultry Sciences (18) Veterinary Medicine (19) Animal Reproduction & Gynaecology (20) Fisheries (21) Veterinary Extension Education (22) Biochemistry (23) Environmental Sciences (24) Instrumentation.

Qualifications and Experienee

(a) **Essential :** (i) Doctorate Degree in the concerned subject; (ii) seven years experience in teaching and/or research of which four years should be in the rank of Assistant Professor or equivalent.

(b) **Desirable :** Research experience as evidenced by publications.

(c) **Relaxation :** In the discipline of Veterinary Sciences & Animal Husbandry and Forestry, the Doctorate Degree is relaxable. Candidates selected and appointed without Doctorate Degree will, however, be required to obtain Ph.D. within six years of their joining, failing which increments will be stopped. (See also General Note)

III. Assistant Professor/Junior Scientist
(UGC Pay Scale 2200-4000)

(1) Plant Breeding & Genetics (2) Agricultural Meteorology (3) Soil Science (4) Floriculture (Medicinal & Aromatic Plants) (5) Plant Pathology (6) Agronomy (7) Forestry (8) Pomology (9) Agricultural Entomology (Nematology/Apiculture) (10) Agricultural Economics (11) Agricultural Statistics (12) Veterinary Surgery/Radiology (13) Veterinary Pharmacology (14) Animal Nutrition (15) Animal Products Technology (Meat / Milk / Wool) (16) Veterinary Medicine (17) Veterinary Physiology (18) Animal Breeding (Cattle/Lab. Animals) (19) Livestock Production & Management (Cattle/Sheep) (20) Poultry Science (21) Animal Reproduction & Gynaecology (22) Fisheries (23) Biochemistry (24) Environmental Sciences (25) Instrumentation.

Qualifications and Experience

(a) **Essential :** High Second Class Master's Degree or equivalent postgraduate qualification in the concerned subject with two years teaching and/or research experience or Ph.D. in the concerned subject.

(b) **Relaxation :** Experience relaxable in the disciplines of Veterinary Sciences & AH and Forestry.

(See also General Note)

IV. Deputy Registrar (Academic)
(UGC Pay Scale 3700-5700)

Qualifications and Experience

(a) **Essential :** (i) Doctorate Degree in Agriculture/Veterinary or allied sciences; (ii) seven years experience in research and/or teaching of which four years should be in the rank of Junior Scientist/Assistant Professor or equivalent.

(b) **Desirable :** A sound knowledge of educational system of Agricultural Universities.

GENERAL NOTE

(1) Professional Degree (B.Sc.Ag. or B.V.Sc. & AH) as the case may be, is essential for all posts except post nos. 6 & 7 (I); 11,12,22,23 & 24 (II); 22,23,24 & 25 (III) and Dy. Registrar (IV).

(2) Candidates not having professional degree in the concerned field and/or having essential qualifications in discipline/subject other than the specified subject/discipline, but having worked in such discipline/subject, shall require two years additional experience over and above the prescribed essential period.

(3) For post nos. 6 (I), 23 (II) and 24 (III), candidates must have specialized in Ecosystem, Dynamics & Management / Environmental Conservation / Pollution Control/Toxicology at Doctorate/PG level and must have prescribed experience in the concerned field of specialization.

(4) For post nos. 7 (I), 24 (II) and 25 (III), candidates must have M.Tech/Ph.D. (Physics) with specialization in instrumentation and the prescribed experience in the handling and maintenance of modern laboratory equipments and gadgets used in biosciences research laboratories.

V. Assistant Librarian
(UGC Pay Scale 2200-4000)

Essential : (i) Second Class Graduate, preferably in Biological Sciences, with High Second Class Master's Degree in Library Science; (ii) three years experience as Senior Library Assistant or equivalent in the pay scale not less than Rs. 1740-3000 (Central Scale) or 1700-2900 (State Scale).

GENERAL CONDITIONS

1. **Allowance and Provident Fund :** As per rules of this University.

2. **Age :** Not more than 55 years on Ist January, 1989.

3. **Nature of Appointment :** Temporary with 2 years probation. However, candidates can be considered for appointment on deputation also on mutually agreeable terms.

4. **Inservice Candidates :** Inservice candidates should forward their applications through proper channel. If selected, they shall be considered as direct recruits and the University shall not be responsible for retention or termination of their lien by their parent employer.

OTHER INSTRUCTIONS

1. Application forms can be had from the Registrar, Sher-e-Kashmir University of Agricultural Sciences & Technology, Post Box No. 262, Srinagar 190001, free of cost. While making request for the application forms, please send a self-addressed envelope, 10" x 4", fully stamped, specifying the name of the post for which application form is intended.

2. Application forms complete in all respects should reach the office of the Registrar, **Sher-e-Kashmir University of Agricultural Sciences & Technology, Post Box No. 262, Dalgate, Srinagar-190001, by or before 15th May 1989,** alongwith a non-refundable application fee of Rs. 30/- (Rs. 20/- in case of Schedule Caste/ Schedule Tribe Candidates) in the form of crossed Indian Postal Order/Bank Draft drawn in favour of **Comptroller, Sher-e-Kashmir University of Agricultural Sciences & Technology, Srinagar.**

3. **The eligible candidates will b informed about the date and place o interview through an intimation unde Certificate of Posting, and will be pai to and fro Second Class Rail/Road Far between the place to which the intima tions are posted and the place of inter view. However, the University will no have any responsibility for the non receipt or delayed receipt of the inti mation by a candidate.**

4. **The University reserves the righ to withdraw any or all posts, and/o defer filling up any or all the posts, advertised here-in-above.**

H.M. Tabi
REGISTRA

INDIAN SOCIETY FOR TRAINING & DEVELOPMENT

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National President ISTD : Prof. Vinayshil Gautam
Chairman ISTD Board of Studies : Prof. B.R. Virmani

GOA UNIVERSITY

BAMBOLIM, GOA

Applications are invited for the following posts in the prescribed form together with copies of certificates and an application fee of Rs. 10.00 (Rs. 5.00 for candidates belonging to SC/ST category) so as reach the Registrar, Goa University, P.O, Santa-Cruz, Bambolim, Goa 403 005 on or before 31 5.1989 from inland candidates and 17.6.1939 from candidates residing abroad. The University reserves, the right of accepting/rejecting applications received after the last date fixed for receipt of applications.

2. Prescribed forms of applications can be had in person free of charge from the Registrar's office or on payment of Rs. 10.00 by crossed demand draft in favour of the Registrar, Goa University on the State Bank of India, Panaji or Bambolim or by Indian Postal Order or by challan in State Bank of India, University Branch, Bambolim, Goa.

3. The minimum qualifications and the scales of pay of these posts will be as prescribed by the University Grants Commission from time to time. Besides the minimum qualifications, the additional/desirable qualifications prescribed for the posts, will be circulated by way of a handout to the desired candidates along with the application forms. The posts also carry allowances as admissible o the Goa State Government Employees. A higher starting pay may be considered for exceptionally qualified persons.

r. No.	Name of the Post	No. of Posts
1.	Professor of History (CLAS)	1
2.	Professor of Sociology	1
3.	Professor of Inorganic Chemistry	1
4.	Progessor of Physical Chemistry	1
.	Professor of Geology	1
.	Professor of Computer Science	1
.	Professor of Commerce	1
.	Professor of Business Administration	1
.	Professor of Marine Biotechnology	2
.	Professor of Marathi	1
.	Director, Academic Staff College (in Professor's scale of pay)	1
	Reader in English	1
	Reader in Hindi	2
	Reader in Marathi	1
15.	Reader in French	1
16.	Reader in Economics (one for CLAS)	2
17.	Reader in Philosophy	1
18.	Reader in Sociology (CLAS)	1
19.	Reader in History	2
20.	Reader in Political Science (one for CLAS)	2
21.	Reader in Physics	1
22.	Reader in Organic Chemistry	1
23.	Reader in Inorganic Chemistry	1
24.	Reader in Physical Chemistry	1
25.	Reader in Microbiology	1
26.	Reader in Mathematics	1
27.	Reader in Marine Science	1
28.	Reader in Computer Science	3
29.	Reader in Commerce	2
30.	Reader in Business Administration	1
31.	Reader in Marine Biotechnology	1
32.	Reader, Academic Staff College	1
33.	Lecturer in Hindi	1
34.	Lecturer in Konkani	2
35.	Lecturer in Marathi	1
36.	Lecturer in French	1
37.	Lecturer in Spanish (CLAS)	1
38.	Lecturer in Portuguese (CLAS)	1
39.	Lecturer in History (CLAS)	1
40.	Lecturer in Economics	1
41.	Lecturer in Physics	1
42.	Lecturer in Organic Chemistry	1
43.	Lecturer in Inorganic Chemistry	1
44.	Lecturer in Physical Chemistry	1
45.	Lecturer in Microbiology	1
46.	Lecturer in Mathematics	1
47.	Lecturer in Computer Science	3
48,	Lecturer in Business Administration	1
49.	Lecturer, Academic Staff College	1
50.	Research Associates in Marine Biotechnology	2
51.	Research Officer (CWS)	1
52.	Research Associates (CLAS)	2
53.	Documentation Officer (CLAS)	1

Note : CLAS=Centre for Latin American Studies.
CWS=Centre for Women's Studies.

Each applicant has to send 10 copies of the application, one of which will be handwritten or typed and the rest will be xeroxed.

The applications will be screened by a Screening Committee which will be competent to classify them on the basis of qualifications and experience and recommend candidates for being called for interview.

Reservation exists for SC/ST candidates for the posts of Lecturers as per the rules. However, where candidates under the reserved categories are not available, the posts will be filled in from amongst the general category candidates. The number of vacancies may change. The University reserves the right to prepare panels of suitable candidates for appointment against new vacancies occurring within a period of one and half years from the date of the meeting of the respective Selection Committees.

It will be open to the University to consider names of suitable candidates who may not have applied in response to this advertisement but are otherwise qualified and considered suitable.

Canvassing in any form by or on behalf of the candidate will disqualify him/her.

The University reserves the right not to fill up any of the vacancies advertised, if the circumstances so warrant.

Dr. S.K. Gandhe
REGISTRAR

"Hand written application with biodata and attested copies of mark sheets are invited for the post of Asst. Professor in Physics in the pay scale of Rs. 2200-4000 so as to reach the undersigned on or before 25th April 1989. No. TA/DA will be paid for attending the interview. Minimum qualifications required is First Class in all the exams including M.Sc."

Principal
H.C. HOME SCIENCE COLLEGE
Ambikapur, Surguja Dist., M.P.

SCHOOL OF CORRESPONDENCE COURSES

ANDHRA UNIVERSITY-VISAKHAPATNAM-530 003

ENTRANCE EXAMINATION NOTIFICATION—JULY, 1989

ENTRANCE EXAMINATION UNDER MODIFIED SCHEME FOR LIBERALISED ADMISSION INTO B.A./B.COM. COURSES WITHOUT ANY FORMAL ACADEMIC QUALIFICATION

Applications are invited from the candidates residing in India for Entrance Examination for admission into 1st year B.A./B.Com. Degree courses for the academic year 1989-90 through the School of Correspondence Courses.

No minimum qualification is required to appear for Entrance Examination, except that candidates should have completed 21 years of age by 1-7-1989, Candidates who pass the Entrance Examination are eligible for admission into 1st year B.A./B.Com. courses in the School of Correspondence Courses only.

Applications will be issued from **15th April, 1989. Duly** filled-in applications should reach this office on or before **20-5-89.** Applications received after the due date of 20-5-1989 will be accepted on payment of the penal fee at the following rates :

Upto 22-5-89 (for first two days)	...	...	Rs. 2/-
Upto 30-5-89 (between third and tenth day)	...	...	Rs, 10/-
Upto 9-6-89 (between eleventh and twentieth day)	...	...	Rs. 50/-

Applications received after 9-6-89 will not be accepted even with maximum penal fee.

Date of B.A. and B.Com. Entrance Examination is 2-7-1989.

Under Modified Scheme of Entrance Examination, there will be four papers of one hour duration each and the examination will be conducted in two sessions on Sunday, the 2nd July, 1989 from 9.00 a.m. to 11.00 a.m. and from 2.00 p.m. to 4.00 p.m. Examination will be conducted in one centre in each district in Andhra Pradesh besides the existing centres in the jurisdiction of Andhra and Nagarjuna Universities.

Intending candidates may write to the undersigned by DESIGNATION for application form, syllabus and model question papers by sending Rs. 10/- by Demand Draft drawn in favour of the Director, School of Correspondence Courses, Andhra University, Waltair along with one self-addressed envelope of 9" × 6" size (without affixing postal stamps). The candidates may also remit cash at the Cash counter in the School towards application form. **Postal Orders and Cheques will not be accepted.**

The students of Introductory Course of this School need not pay Rs. 10/- towards the cost of application form, syllabus etc., and also need not send the requisition letter for the Entrance Examination application form. The School will send the necessary application form to the students of Introductory Course. However, the duly filled-in application form should be returned to the School with all necessary enclosures on or before 20-5-1989.

The prescribed application forms, syllabus and model question papers are also available at our following Study Centres on payment of Rs. 10/- through Demand Draft in favour of the Director, School of Correspondence Courses, Andhra University, Waltair : 1. Government College, Srikakulam, 2. M.R. College, Vizianagaram; 3. Mrs. A.V.N. College, Visakhapatnam; 4. Govt. College, Rajahmundry; 5. P.R. Govt. College, Kakinada; 6. Sir C.R. Reddy College, Eluru; 7. SRR & CVR Govt. College, Vijayawada; and 8. A.C. College, Guntur.

The School has no agents and takes no responsibility for the prospects issued and promises made for admission by any other institution.

Waltair
Dt. 31-3-1989

Prof. V. Abraham
DIRECTOR

NOTE : The applicants should clearly mention whether they require Entrance Examination application form either for B.A. or B.Com.

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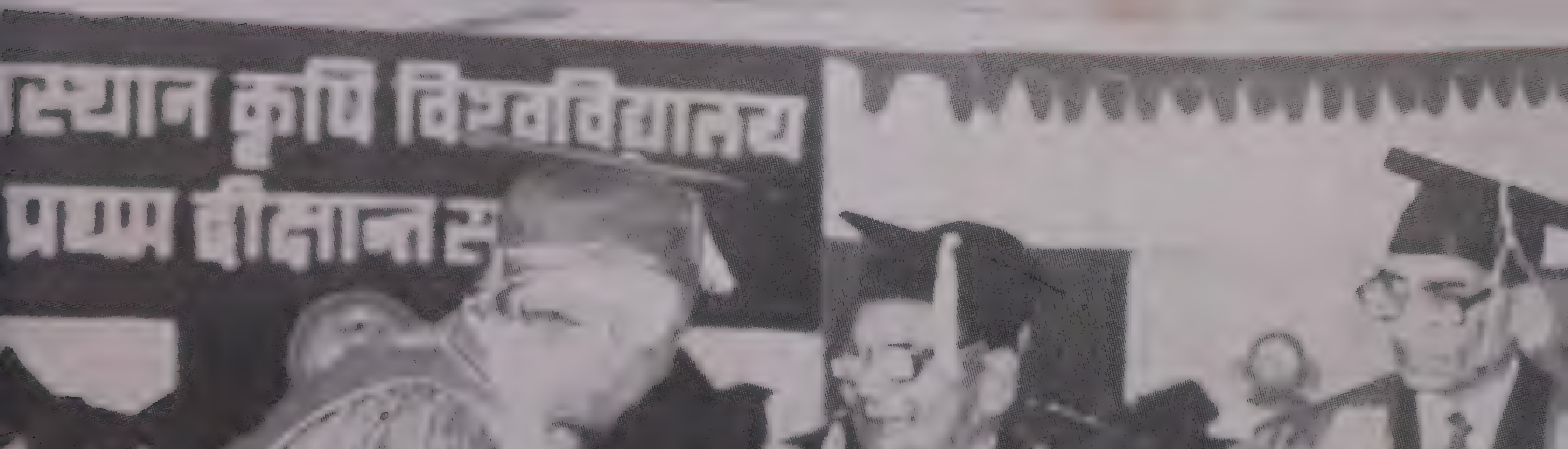

ri Sukhdev Prashad, Governor of Rajasthan, conferring the degree of Doctor of Science *(Honoris Causa)* on .S. Swaminathan, President, International Union for the Conservation of Nature and Natural Resources while Dr. K.N. Nag (right), Vice-Chancellor, Rajasthan Agricultural University, looks on.

SAHA INSTITUTE OF NUCLEAR PHYSICS

SECTOR-I, BLOCK-AF, BIDHANNAGAR
CALCUTTA 700 064

87th POST M.Sc. ASSOCIATESHIP COURSE
(1989-90 Session)

Applications are invited for admission to the one-year Post M.Sc. Associateship Course of the Saha Institute of Nuclear Physics in two streams : (1) Physics; and (2) Bioscience.

Eligibility

(a) Physics : Master's degree in Physics/Applied Mathematics with background in Physics

(b) Bioscience : (i) Master's degree in Physics with strong motivation in Bioscience.
(ii) Master's degree in Chemistry with specialization in Physical Chemistry/Biochemistry
Or
(iii) Master's degree in Biochemistry/Biophysics/Molecular Biology.

Candidates just appearing in their final examination may also apply.

Admission Test

Admission will be on the basis of academic records and performance in the admission test consisting of a written examination and interview which will be held in the month of July/August, 1989. The session is to commence in August/September, 1989.

Travelling Allowance

Candidates called for the admission test will be reimbursed return second-class Railway fare from their normal place of residence and will be paid DA for one day only as per the rules of the Institute.

Scholarship and Hostel Accommodation

Selected students will be paid a scholarship of Rs. 1800/- per month (likely to be revised) for the duration of the course. Hostel accommodation is likely to be available for outstation male students only.

Future Prospects

Absorption as Research Fellows at appropriate level depending on the performance in the course and availability of fellowships.

How to Apply

For application forms and prospectus, write to :
The Registrar,
SAHA INSTITUTE OF NUCLEAR PHYSICS
Sector-I, Block-AF, Bidhannagar,
Calcutta-700 064.

before May 15, 1989. Completed application forms must reach the Registrar, SINP by **May 31, 1989**.

D.N. Bhattacharjee
REGISTRAR

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tor :
TINDER SINGH

5 MAY 1989
MYSOR

Development of Information and Library Network (INFLIBNET)

A.P. Srivastava*

In April 1988, the University Grants Commission (UGC) constituted a Committee under the Chairmanship of Professor Yash Pal to work out the details of a University Information Library Networking System. This Committee created an Inter-Agency Working Group with the following terms of reference :

1. To review the present scenario of library automation and computerised bibliographic information services in India, taking into account similar services/experiences in some of the developed countries, with a view to propose a mechanism to establish a Network of Libraries in universities, colleges, special libraries and documentation centres in the country;
2. To identify the possible areas of cooperation for resource sharing and to minimise duplication in acquisition of books, serials, etc;
3. To propose a mechanism for using such a network for scientific communication among the research community in the country and abroad;
4. To specify the objectives of the Network at National, Regional and Unit level;
5. To suggest a suitable architecture for the Network;
6. To define the areas of standardisation required in the Network and to suggest minimum level of standardisation for effective compatibility and participation in the three component areas of the Network, viz. database, data communication and computer hardware and software;
7. To suggest (a) an action plan for implementation, and (b) management mechanism including financial and personnel requirements to maintain and sustain the Network in short-term and long-term; and
8. To prepare within 3 months a Project Report (PR) for developing a Network based on the above factors.

The report of this working group was published in December 1988 containing project proposal for the establishment and development of an information and library network (INFLIBNET). INFLIBNET was defined as a computer-communication network of university and R & D libraries of the country and bibliographical information centres. It aimed to be a cooperative network through pooling, sharing and optimisation of resources, facilities and services of libraries and information centres. It attempted to be a multiple function/service network offering catalogue based services, database services, document supply services, collection development and communication based services. It aimed to aggregate catalogues bottom-upwards, i.e., from college/department to university library and to the regional centre with the provision of sectoral information centre to take care of maintaining and servicing secondary information/database. It planned about 400 nodes for servicing. It proposed a national centre for managing, overseeing and coordinating and four regional centres for maintaining union catalogues and databases of projects, institutions and specialists. At the sectoral level it included

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*Fellow, Indian Institute of Advanced Study, Shimla-171 005.

UGC information centres, NISSAT and other sectoral information centres in specific areas to acquire, create and access retrospective and current bibliographic databases. INFLIBNET proposed about 100 university and R & D libraries to become document resources centres for providing document delivery service.

INFLIBNET attempted to provide standardisation in operation and services. It discussed at length software requirement, and compatibility as a major factor. It also detailed the strategy for developing application, software packages. It charted the services and functions at various levels from the national centre to individual libraries. It drew technical specifications of the computer hardware system and infrastructure for various levels. It proposed a communication architecture, keeping in view various parameters and recommended a hybrid version of satellite and terrestrial networking, having a central hub and 400 ground terminals at 150 university, libraries, 50 autonomous colleges and 200 others. It also advocated for local area network by connecting nodes in a particular city. It selected the slotted aloha scheme (for uplinking from small terminals) and the TDM Scheme for uplinking from the central hub.

INFLIBNET proposed to convert about a million unique catalogue records of 179 university libraries into a common catalogue database in just two years through students' assistance. It may prove to be too ambitious a plan. It also suggested a mechanism for inputing and processing ongoing catalogue data in a machine readable form. Experience would suggest that as a first step emphasis should have been laid on the ongoing catalogue data in a standard form and, through the principle of osmosis, we should have attempted living documents in constant use. Once this was completed an attempt should have been made to cover the backlog. After all, the selective approach is a sign of professional maturity particularly in a situation where the nation is planning the mighty leap of a complete transformation of Indian libraries from a bullock-cart culture to a jet-age culture. INFLIBNET planned long term, short term, regular and continuing professional training programmes for staff development. In a matured way of doing things atleast a computer-PC/Word Processor—should have been provided long ago to each university library and each graduate library school, with the communication facility of telex. But these were not done. Even now-as a preliminary act these should be immediately provided for laying down of tracks on which the trains of cooperation and networking will have to run.

INFLIBNET conceived of establishing a registered society to manage its affairs. A serious study of institutions run by registered societies will reveal that these have not been a real success. Perhaps, the local and regional consortia—including Vice-Chancellors, University librarians, etc.—would give much better results, having at the apex a cell in the UGC for national level coordination. INFLIBNET also identified certain pre-project activities, and planned to complete the mission only in four years in two phases, starting from April, 1990. It will not be a pessimistic approach to prognosticate that in Indian conditions it will require much longer a duration (than 4 years) and more phases (than just 2) to complete the task and fulfil the mission of this type. The working group proposed the total cost of Rs. 15,068.45 lakhs including Rs. 10,300.82 lakhs for non-recurring and Rs. 4,767.63 lakhs for recurring expenses. For the first phase (April 1990—March 1992) the sum needed was Rs. 5,516 lakhs; and for the second phase (April 1992—March 1994) the sum needed was Rs. 9,552 lakhs. It is not certain as to what will be the fate of these proposals at the hands of the Planning Commission of Innia, but I feel that it is not the best and practical set of proposals, because of the following features, etc :

1. From almost nothing of technology to sudden input of the most sophisticated input of computers etc., in all university libraries has no precedent. Feasibility studies have been ignored by the over enthusiasm of computer merchants and men.
2. Grassroot organisations like consortia in each region having VCs, librarians, Directors of R & D, and users are essential. Only national and regional bureaucratic organisations will not be able to achieve the desired results.
3. While computer element dominates in all sectors and in overall thinking, it has not been properly synthesised by the technologies of satellite, facsimile services and more important of all, the resource sharing.
4. Computer people have practically side tracked the professional elements and features of quality in the entire planning and visualisations with the result that instead of remaining the secondary facet they have become the most dominant lot. A proper mixture may have reduced overall costs.
5. Four years of span in transformation is too short. Things have not gone this way in four years even in American and European libraries. In forty years after independence our university libraries have not developed even proper

local catalogues and sound union catalogues have not at all emerged. How could a perfect mechanisation be obtained in the absence of proper manual controls ?

6. The entire exercise appears to be over enthusiastic : ignores realities of university libraries; hopes to get magical results in a very short time; eliminates the basic laws of selection and feasibility; given no scope for routine local cooperation and achievements step by step over necessary range of time. Period of four years is certainly too short to obtain any worthwhile results.
7. The realities of the lack of necessary executive powers to university librarians, who will be required to play major roles of achieving, have been ignored. The state of total neglect of library scene in universities by Vice-Chancellors, etc., have not been taken into consideration. Unless things improve in these twin areas major achievements may not be forthcoming in library and information affairs.
8. Our universities are autonomous. The proposed national institution, managed by a registered society, will have no jurisdiction over universities and their libraries. Hence, plans are not likely to succeed. Our universities have an inward-looking conservative method concerning their libraries and what dominates most is almost the total neglect of library affairs.
9. In the process of evolution (not this sudden transformation through INFLIBNET) stages like Centre for Research Libraries (CRL of U.S.A. coming in 1949); BLCMP, SWALCAP, SCOLCAP etc. (of United Kingdom), and many others, cannot be ignored.
10. INFLIBNET ignores the vital roles of library professional associations in the country. We also cannot ignore organisations like, Standing Conference of National and University libraries (SCONUL of U.K.) in our plans of action.

One would wish, even pray, that library automation gets going in our universities and R & D institutions and funds demanded by INFLIBNET are provided. But at the same time one cannot make our Planning Commission approve an impractical and much too ambitious a project drawn in a hurry, possibly to perform routine bureaucratic roles (as the UGC seems to have done) suddenly by appointing a Committee (which in turn appointed an inter-agency working group to deliver in three months a project report). It seems that the pressure of 1986 New Education Policy, prescribing library and information network, created its impact on the UGC to work and thus the commission clubbed it with the dawn of the Eighth Plan exercises and therefore, drew suddenly out of its pocket a Rs. 150 crores project. In fact, a national University Grants Commission is expected to have conducted a continuing programme of thinking and analysis processes over years and decades on the vital area of library networking and when the two situations of 1986 New Education Policy and the Eighth Plan coincided the UGC should have done only an exercise of synthesis in finalising an INFLIBNET. The INFLIBNET, as it stands, is a product of under incubation and expects too fast a growth from natal level to adult level. Such programmes have not emerged in other countries like the goddess Athena, full grown out of the ashes. □

UNIVERSITY NEWS

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The Concept of Accreditation and Assessment Council Some Observations

K.S. Chalam*

The Programme of Action of National Policy on Education, 1986 has proposed the establishment of an Accreditation and Assessment Council (AAC) for maintaining and raising the quality of institutions of higher education. In order to prepare a detailed report on the proposed Accreditation and Assessment Council, the University Grants Commission (UGC) has constituted a Committee with Dr. Vasant Gowariker as the convener in November, 1986. The Committee has prepared a concept paper for discussion among the academic community. The UGC after receiving the report, decided to conduct workshops in different regions and asked some identified universities to conduct workshops on the concept of Accreditation and Assessment. In appears that a few workshops have been organised. But, the outcome of these workshops and the policy decision of the Government in implementing this structure is not known yet. It is therefore felt that a national debate on the proposed council and the issues involved in the establishment of the council need to be initiated. The objective of this paper is only to initiate such a discussion.

Development of the Concept of Accreditation

A brief account of the genesis and development of the concept of accreditation is given here to understand its relevance to India.

The accreditation movement was started in the U.S.A. during the last quarter of the 19th century and the first association had come into operation by 1916. There are around 9 such accreditation organisations in the U.S.A. which accredit around 90 per cent of the higher educational institutions today. In U.S.A. where education is a state subject, accreditation associations perform the function of the federal government in ensuring quality in education. The objectives of these accreditation bodies in the U.S.A. are to (1) certify to the general public, to government and to other institutions the minimum qualifications of the institutions accredited, (2) provide limited protection against degree mills and disreputable educational practices, (3) provide counsel and assistance to new and developing institutions moving toward accreditation, (4) encourage improvement in institu tions by a review of activities, by development o recommendations regarding programme quality, an by preparation of guidelines for assessing education effectiveness, (5) encourage continuous self-stud and evaluation, (6) provide a basis for assuring th institutions are worthy of assistance from variou federal programmes, and (7) provide some protectio to institutions against threatened encroachments o their autonomy which might also destroy educationa quality.

However, accreditation appears to have been pro posed in India to operationalise accountability on horizontal line and to establish norms and criteria f institutional performance. Governments which ar responsible for the financing of higher education hav shown keen interest in the quality of education i recent years. The term 'Quality' has acquired no the same status as had 'accountability' in the la 1970s in the West. It is because of the increasin 'cost consciousness' of the Governments and th economic crises experienced by them in recent year This is in a way preventing them to provide mo liberal funds for education. Therefore they have no turned their attention to the management of th higher education system so as to bring about mor productivity and returns with the given funds.

It is said that the higher education system in th country is not generative because of the manner governance of the institutions which is not conduciv for such activity. Therefore, it is mentioned that th academic institutions must be built around the 'pri ciple of intellectual autonomy'. This principle w not encouraged during the British rule which man ged the system on 'command-and-control' princip and stifled intellectual and pedagogical initiativ Now it is realised that this command-and-contr mechanism of management can be replaced by humanitarian, decentralised, democratic and facilit tive system. Further, the size of the higher educati system has increased in leaps and bounds in the pos Independence period and it stands at 5482 colleg and 156 universities and deemed universities by t end of 1985. It is found that it is very difficult manage these institutions. Therefore, it is propos to establish autonomous colleges to reduce the burd

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Director Incharge, Academic Staff College, Andhra University, Visakhapatnam-530 003.

of management and conduct of examinations. It is also necessary that the Government should protect the interests of the qualitative and good institutions against 'spurious and delinquent' institutions which cheat the gullible parents and students. Therefore, a voluntary association of institutions to protect themselves against these spurious institutions and to promote quality has been initiated by the University Grants Commission. This idea is called the Accreditation and Assessment Council.

The Proposed Indian Accreditation System

The Accreditation and Assessment Council is proposed as a voluntary body of member institutions. There are two categories of accreditation; institutional and professional. The immediate concern of the Accreditation and Assessment Council is to develop an institutional accreditation mechanism. This will be done in two stages. In the first part, accreditation process starts with self study by the institution and the second part will be done by an onsite evaluation by a team of professional educators consisting of faculty and administrators.

In order to be accredited, an institution must satisfy a qualitative criteria consisting of 12 factors relating to the institutions' activity and responsibility. Before the institutions are accredited, a provisional two year 'candidate status' will be given to institutions after satisfying certain criteria and it can be extended upto six years. The accreditation bodies reserve the right to review member-institutions at any time and can drop any institution which shows serious weaknesses.

The accrediting associations are supported by annual dues from the candidates' organisations. The members elect a sixteen members commission at the annual meeting for a staggered three year term, with one third of the positions being vacated each year. The member institutions will be represented by the administrative head of the institution in the annual meeting to elect the commissioners. The Chairman of the Commission and Associate Chairman will be elected for one year term by the association representatives. The AAC with the consent of the UGC will appoint a Director of Evaluation to conduct the day to day affairs of AAC. His term of office will be 5 years and can be terminated by the Commission for valid reasons. The AAC will be made to function on a zonal basis in course of time. The initial expendiure for the functioning of the AAC will be provided by the UGC. Similarly the initial impetus will come from UGC by selecting 20 good autonomous institutions as members of Accreditation and Assessment Council.

Central Government funding of institutions will be possible to those which are accredited. However, the State Governments are free to found, recognise and charter institutions but they will not be given central funds if they are not accredited. It is suggested that atleast 500 colleges be made autonomous by the year 1990. Similarly, all affiliating universities will themselves be not eligible for candidature until they have divested themselves of the affiliated colleges.

The Accreditation and Assessment Council will in course of time develop linkages and positive influence on the standards of secondary education and also other professional institutions in the country. It is hoped that this accreditation mechanism will promote independence and scholarship in and among the educational institutions in the country.

Some Issues for Discussion

(1) The qualitative criteria suggested by the Committee is ambiguous and need to be made clear with quantitative indicators.
(2) The AAC State units need to be established and they in collaboration with the national and neighbouring state units should evaluate the institutions.
(3) The Centre-State financial relations after the establishment of AAC.
(4) The development of two types of institutions in the State; one controlled by the State and the other accredited by the Central AAC.
(5) Politicisation of AAC and the harmful consequences.
(6) Is there a need for Accreditation and Assessment Council ? Can't the existing mechanism of affiliation be strengthened and universities given full autonomy ? ☐

TO OUR READERS

Knowledgeable and perceptive as they are, our contributors must not necessarily be allowed to have the last word. It is for you, the readers, to join issues with them. Our columns are as much open to you as to our contributors. Your communications should, however, be brief and to the point.

TEACHING-WRITING MODEL

Hamid Hussain*

The Teaching-Writing Model (TW Model) is based on Gerbner's general model of communication (1956) which was modified by Fiske (1982). Gerbner's model is linear in its approach, rather than circular. He sees the process of communication as the perceiving/receiving process through which an event is brought to our attention; and second the communicating process itself, through which we attempt to convey the message to the receiver.

In this model, an individual perceives an event which is affected by his own inclinations, consciousness and intentions, and by the context in which he perceives the event. These personal factors produce modification in the event. The perceiver formulates a statement of message about the event. To convey this message to a selected audience he chooses the medium. When he has selected the medium (e g. speech, film, photograph, print etc) he will rearrange the contents of the message accordingly. After the message has been received by the audience, reaction to the message will take place. The audience will judge the message in context of its nature, intentions, set of needs and culture. The impact of the message may vary from receiver to receiver, and it is unlikely that the full potential of the message will be received without loss or gain. This process of communication can be presented diagramatically (Diagram 1).

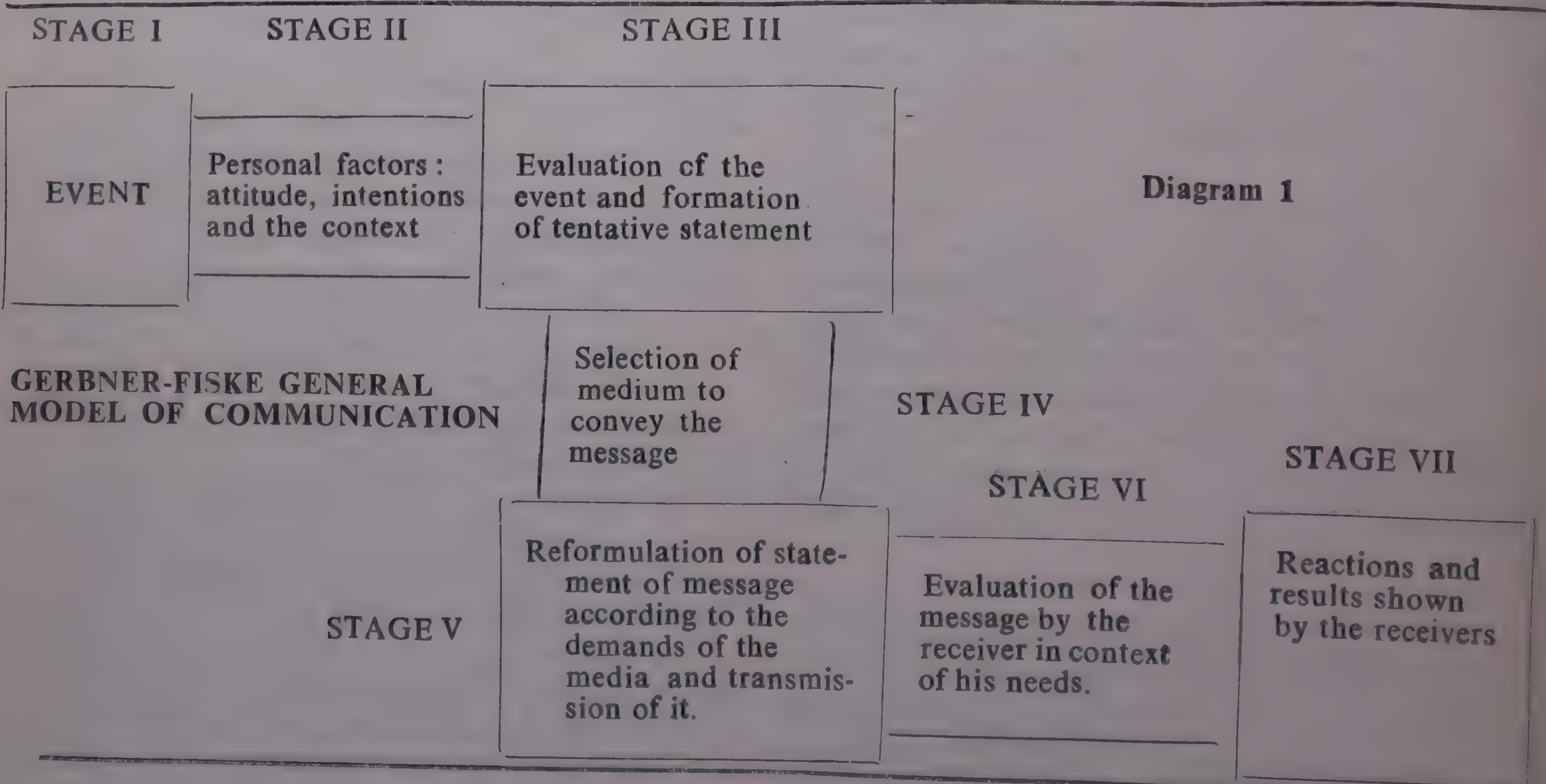
STAGE I
STAGE II
STAGE III
EVENT
Personal factors : attitude, intentions and the context
Evaluation of the event and formation of tentative statement
Selection of medium to convey the message
STAGE IV
STAGE V
Reformulation of statement of message according to the demands of the media and transmission of it.
STAGE VI
Evaluation of the message by the receiver in context of his needs.
STAGE VII
Reactions and results shown by the receivers

Diagram 1

GERBNER-FISKE GENERAL MODEL OF COMMUNICATION

TW Model in Teaching Process

According to this model, teaching process passes through seven stages. First, teacher decides what is to be taught. He selects a topic to teach in a class. Second, teacher has his own attitudes towards the topic. This attitude guides him as to how to deal with the topic. He devotes his time to prepare it according to its significance. Third, he contemplates and evaluates the topic on the basis of his understanding and intention. He analyses different aspects of the topic which need more focus and exposure. He fixes objectives and accordingly the amount of information needed to deal with different aspects. Fourth. and this is the most crucial stage where he decides about the suitability different media, i.e , different strategies of teaching suitable to achieve his objectives. A resourceful and well informed teacher can use a wide range of communication technologies in the class. Fifth, this stage is closely related to previous one. When the teacher has decided to transmit the information on a particular topic through a particular strategy or a combination of strategies he arranges the available teaching material so that it can be treated by a particular strategy. For example, suppose that teacher has decided to present a topic in a couple of teaching sessions, keeping the nature and scope of a topic in view he decides to adopt at least three teaching strategies to teach it. He may decide for example, (1) to use more verbal explanation and less chalk board exposure; or (2) to use a combination of chalk board and roller board assisted by a little verbal explanation; or (3) no use of chalk board but extensive use of lecturing; or (4) he decides to combine overhead projector, explanation and questioning. Obviously these four teaching strategies are different and therefore teacher needs four different teaching material formats to use these techniques effectively. The format of teaching material prepared to teach through first strategy in this example cannot be used to teach through fourth strategy. This makes the relationship between material and method abundantly clear. Sixth, during the classroom interaction between encoder (teacher) and decoders (learners) the latter's personal factors such as cognitive, social, psychological framework including feelings, attitudes, values, and objectives influence the reception of the message delivered by the teacher. Some of the students receive the message successfully and feel quite adjusted and relaxed in the class ; and those who fail to receive the message are not only the losers but also become maladjusted in the class. Thus teaching becomes a iasco because sometimes teacher sends distorted message to students and sometimes students fail to capture the message. And 'total teaching' i.e. teaching which provides optimum satisfaction to teacher and provides maximum benefit to majority of students in the class, remains an ideal. This stage has serious repercussions on educational standards. This is a vital issue and calls for separate discussion. Seventh and the last stage in the teaching process may be called reaction or feedback stage. The reaction to the message sent by the teacher occurs both during and after the message. The students raise points and questions; they express their satisfaction or dissatisfaction with the performance of the encoder (teacher). At the conclusion of the lesson teacher assesses real learning outcomes on the basis of the objectives already fixed. The performance of students is used as feedback that provides an opportunity to the teacher to design his future teaching plan.

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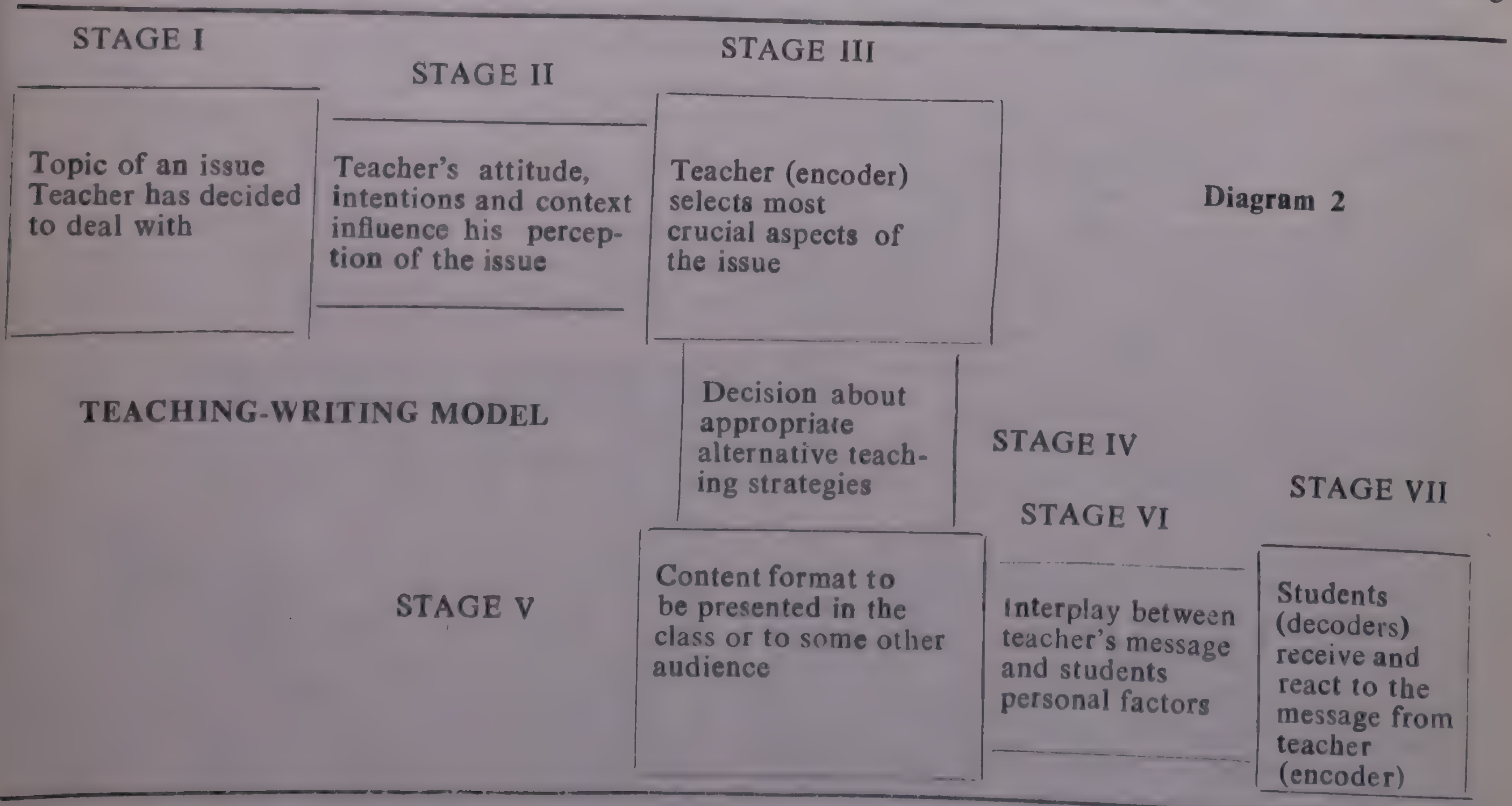
STAGE I
Topic of an issue Teacher has decided to deal with
STAGE II
Teacher's attitude, intentions and context influence his perception of the issue
STAGE III
Teacher (encoder) selects most crucial aspects of the issue
Diagram 2
TEACHING-WRITING MODEL
Decision about appropriate alternative teaching strategies
STAGE IV
STAGE VII
STAGE VI
STAGE V
Content format to be presented in the class or to some other audience
Interplay between teacher's message and students personal factors
Students (decoders) receive and react to the message from teacher (encoder)

These seven stages of teaching process can be presented in the form of a model which is based on Gerbner-Fiske model of communication. (Diagram 2). Stages 1-3 describe the perceiving/receiving process (the horizontal arm). An issue or problem or a topic is perceived by a teacher to deal with it in the class. He examines it in the context of his own inclinations, consciousness, understanding, and intentions. As a result to this analysis, either he may develop liking and interest or apathy and indifference towards the topic. The attitude and level of involvement of teacher will determine the further course of action, that is, identifying and ordering the aspects of the topic to be covered. At this stage teacher's scholarship and personality play important role. These two factors decide range of contents.

Stages 4 and 5 form the vertical arm of this model; these stages explain the communication process by which message is transmitted to the decoder. Teacher selects such techniques and strategies that can make teaching stimulating and effective. When he has decided about the media, he will enter stage 5, i.e. preparing different content formats to be taught by using different teaching strategies chosen by him. In the normal course, first the material is prepared and passed on to the learners. This is one of the reasons why teachers fail to use a wide range of methods of teaching they learn during their teachers' training. When acquired skills and knowledge are not continuously used and practised they are forgotton. In other words teacher relapses into professional ignorance.

Why is it that monotony and boredom enter into teaching learning process and both students and teachers start feeling tired. The reason is that teacher stops the process of learning and analysing of contents on the one hand, and continuous use of one method of teaching to teach different kinds of contents on the other. The contents are a flexible mass of material which can be arranged in several forms. When form of content changes strategy will also change.

Stages 6-7 are equally important, dealing with second process of perceiving/receiving (second horizontal arm). It shows students' reception of the message of the teacher. This perceptual activity marks a transformation from content presentation to students' reactions. Mckeown (1982) comments that 'the receiver of the message brings his own nature, intentions, set of needs and culture to the message. The meaning that results will therefore possibly vary from receiver to receiver; and it is unlikely that full potential of the message will be received without loss and gain'.

The contents and methods may be attractive and rewarding for some students while the same contents and methods may cause boredom and resentment among other students. Possibly a few students may be stimulated so much that they may try to know more about the subject; whereas others may completely draw blank. It has been found that an effective teacher may inculcate new interests and tastes among students whereas an academically alienated and disinterested teacher may possibly inculcate aversion and antipathy towards a subject.

Application of TW Model in Writing

This model may also be used to sharpen writing skills. It does not of course, cover all essential aspects of writing, yet it may lead to better results.

This expectation is based on the basic postulate that writing and teaching are twin sisters, very close to each other. The ultimate purpose of the two is to produce new behaviours in audiences through messages. Both walk together upto a particular point and then part their ways.

The writing process starts with a question mark, begging for an answer. The question mark may be an event, accident, problem or a burning topic or a writing assignment. The first step that may be taken is to search for relevant material somewhere deposited in the memory bag. Try to retrieve the maximum possible data from the personal sources. Searching for the appropriate information and making notes out of it is actually evaluation of the issue in context of personal factors (inclinations, feelings and attitudes). There are several other sources of information such as friends, teachers, experts in the field, and wide network of printed material.

Having collected a large mass of information concerning the topic, choose only those aspects which are most crucial and adequately cover the topic. To perform this activity successfully, it is better to fix objectives of your paper or ask a few questions. When you have written answers to all your questions, you will see your jumbled mass of information in an ordered form. Thus at this stage evaluating, rejecting and accepting of the collected information are main activities (third stage). Remember it is a rough draft of your paper and not the finished product.

The fourth stage in this model is about the media you want to use to present your message. Are you writing to publish in some daily newspaper or periodical ? or, are you going to present it to some gathering ? You may be invited to present your paper to Television audience or Radio listeners. These different media will require different formats of contents. It shows that restructuring of contents is done according to the demand of the medium. In this process you may have to scrap few points altogether: or, more information may be required which you have not collected so far. At this stage the final draft of the message is complete and transmitted.

The receivers (decoders) will evaluate the message according to their perception, understanding and expectations. It may be appreciated or criticized. No message is complete, perfect and ideal. It therefore

(*Continued on page 13*)

Agricultural Situation in Rajasthan

Dr. N.S. Randhawa, Director General of the Indian Council of Agricultural Research in his convocation address delivered at the first convocation of the Rajasthan Agricultural University delineated the agricultural scenario of the State of Rajasthan. He asserted that in appreciation of the development needs of desert areas, the Government of India has taken a number of steps like establishment of the Desert Development Board, Central Arid Zone Research Institute, Central Sheep and Wool Research Institute, National Centre on Camel Research, Indian Grassland and Fodder Research Institute, Central Soil Salinity Research Institute, Central Research Institute on Dryland Agriculture and the formulation of the Drought Prone Area Programme (DPAP). However he felt "probably a change in strategy from one of agricultural growth alone to integrated rural development encompassing employment generation and poverty alleviation may be worthwhile." Excerpts

Convocation

Agricultural Scenario

During 1988-89 we hope to achieve the target set for production of 166 million tonnes of foodgrains and may even surpass it by a few million tonnes. But we have no time to relax or rejoice since a large proportion of foodgrains continue to be produced under conditions of uncertain rainfall and we have to work hard for stabilizing production in these areas of our country. It is becoming increasingly vital to achieve long-term sustainability of land as a basic resource in harmony with its environments.

We are all concerned to note that the contribution of agriculture to the national income has fallen from about 59% during 1950-51 to around 32% during 1986-87 with only a marginal decrease in rural population from 82% to 74%. Also most of the gains in agriculture production have come from areas of favourable environments with assured irrigation under intensive agriculture. The productivity of irrigated crops in many parts of the country continues to be very low, with a national average of around 1.9 t/ha. It may also be remembered that a good part of the minor irrigation including well-irrigation is vulnerable to the vagaries of monsoons, while excessive withdrawal of ground water is a threat to the stability of agriculture in many irrigated areas. Under these circumstances it has become all the more important for us to be more careful in our agricultural planning for achieving sustainable food security.

Needless to say that crop planning in relation to eco-system and scientific land use have been weak links hitherto. It is recognised that sustainable agriculture should cash in on the climatic advantages unique to a region, be in harmony with its environment, be economically competitive and should ensure social justice and equity. In this context I would like to share some of my thoughts relevant to Rajasthan.

STATE SCENE

Agro-climatic and Crop Productivity of Rajasthan

It is well known that Rajasthan is beset with adverse climatic situations which hinder its agricultural growth. Recurrence of droughts and famine conditions is the peculiar feature of the state. There is a large variation in rainfall and temperature among different zones. The lowest amount of rainfall (about 180 mm) is received in the Jaisalmer district of the desert region, while the highest precipitation (about 1800 mm) is experienced in the Aravalli hills. Even in this driest state we occasionally experience devastating floods. High summer temperature (45-48°C) is recorded in many parts of the state, while in winter frost is not an uncommon phenomenon. Desert soils and sand dunes in the western plains do not offer congenial condition for most of the crop species.

Rajasthan can be classified into three distinct agro-ecological situations. They are the (1) Irrigated Ecosystem under the command of Rajasthan Canal area and Luni basin, (2) Rainfed Ecosystem comprising (i) high rainfall tribal areas of the hill region and (ii) moderate rainfall plain areas and (3) Deserts Ecosystem.

Irrigated Ecosystem

The ultimate irrigation potential of this state is estimated at 5.15 million ha. which includes Rajasthan Canal stages, Jakham, Gurgaon Canal, Mahi Bajan Sagar, New Okhla Barrage, Kota Barrage, Chambal Lift and Sardar Sarovar.

In western Rajasthan, the only river of some significance is Luni. The Luni river basin has an integrated drainage system. The Luni and its 11 tributaries are emphemeral in nature and contribute to the runoff whenever we experience heavy rainfall events. The basin has 160 medium to minor dams, utilising 503.01 million cubic centimeters of runoff which irrigates 80600 ha. of land. The major part of the area is covered with granite, volcanic and metamorphic rock formations. The groundwater is at a shallow to moderate depth and is generally saline. Yield from the wells is low, except near the river channels. The construction of dams has resulted in water-logging and salinity problems. The siltation rate of dams is very high, and generally stored water is also mineralized.

Looking to the terrain characteristics, rainfall pattern, poor recharge, yield and salinity of groundwater in the region, the best option may be harnessing of runoff at various locations for irrigation through small structures such as check dams and anicuts, which will also improve the groundwater condition. The construction of mechanical measures and gully control structures should be taken up to control the soil erosion problem.

Also hidden within the desert plains are several courses of former streams, which could be the potential sources of ground water. The streams were active in previous water-climatic phases, but became erratic in flow and dried up during harsher arid phases like the present one. Many of the streams were totally lost, as they were gradually buried under their own debris and wind-blown sand; many others survived but changed courses several times, and the abandoned courses were similarly buried subsequently. Mapping of those buried courses through remote-sensing and analysis of their environment would provide clues to the availability of ground water in the vast Quaternary formation of the desert. The most notable former stream within the desert, and a celebrated one too, is the Saraswati, which is mentioned in our ancient scriptures and epics like the Rig Veda and the Mahabharata. The present dry beds of the Ghaggar and the Chautang in the northern part of the desert are the remnants of those streams, along which early Harappan and pre-Harappan civilizations flourished. Recent studies at the Central Arid Zone Research Institute (CAZRI) have indicated that formerly both the streams had their courses in the desert which may not be annually recharged. Yet, one particular buried course through the extremely arid, dune-infested terrain of Jaisalmer has yielded potable water at a number of drilled sites. It is suspected that this course gets annual replenishment from its headwaters in the Himalayan and sub - Himalayan areas. I feel that without preverification of the total reserve along its several such potential buried courses and without investigating the recharge condition among them, too much exploitation of these sources shoul not be carried out. The water from these courses should be used judiciously and in limited areas, so that this precious natural resource i not depleted fast or lost to the posterity.

Dr. N.S. Randhawa delivering the convocation address

As of today, nearly fifteen per cent of the net sown area in ari Rajasthan is under irrigation, o which seventy per cent is through canal and rest mainly by dug well and tubewells. Upon realizatio of the full potential of Indir Gandhi Canal, this figure may g up to 20 per cent of the net sow area. However, due to the introduction of irrigation during the first phase of the Indira Gandh Canal in sandy terrain, the static ground-water level has been risin at an alarming rate. An estimate of the water added to the groundwater storage indicates a rise o 0.3 to 1.5 m per year in groundwater table. If six metre depth is considered a critical limit, the acute problem of drainage may aris within the next few years, if the rate of rise in static water level continues. Moreover, scattered occurrence of perched water table is also discernible as a result of which the lands are becoming saline. We have to be equally conscious of the fact that introductio of irrigation in a big way to gypriferous soils in the Indira Gandh Canal Command areas may eventually create the problem of soi subsidence. To avoid these adverse situations of drainage, developmen of salinity and soil subsidence i would be desirable to adopt suitable farming systems depending o the surface and sub-surface so conditions, as well as environmental conditions. Crop produ tion on marginal lands with fragile eco-system may not be sustainable ecologically as well as economically. Taking an overall view, farming system is to be so desired that a synthesis is established between economics and ecology. Citing some examples, the sewan grass in Pali region of Jaisalmer need to be protected, maintained, and its production augmented so as to build efficient fodder banks to mitigate fodder scarcity in the drought years. The work of the CAZRI on sprinkler irrigation of sewan grass needs attention in this context.

Since sizeable proportion of ground water is saline, its possible use in the establishment of tree species in social forestry and agroforestry should be explored. Tree species like neem, **Acacia aneura**, **Prosopis juliflora**, **Colophosphorum mopane** and fruit crops like **ber** and date-palm have shown promise under saline water irrigation. However, by adopting an integrated approach, productivity under saline water irrigation can further be increased by adoption of suitable plant types and varieties, method of irrigation and fertilizer use. The possibility of use of saline water for fish production, which has shown promise in other regions, should be explored for increasing the income of farmers.

There is a need to undertake special studies on the socio-economic issues in the Indira Gandhi Canal Command area so that farming system advocated for the settlers are in harmony with their social mileu. We witness here colonization on a vast scale, movement of populations, development of new economic centres and towns, presenting the contrasting profiles f this rich irrigated area and the est of the desert regions. We tand at a stage where it is possible to intervene and avoid blunders of misdirection by taking cognizance of them beforehand.

Rainfed Ecosystem

I understand that rainwater use efficiency is less than 50 per cent in some districts, and the existing land use pattern may utilise only 50 per cent of the rain on the average. There is a considerable scope for proper management of rainwater so as to enhance its effective use.

Low risk and low cost technologies are more relevant to the poor farmers of arid zones who suffer due to the vagaries of capricious weather more often than others. We have to develop technologies which would give stable yields on a sustained basis. In this context, watershed area approach would seem to be more appropriate for arid areas with additional emphasis on promotion of group action.

The arid regions experiencing less than 300 mm annual rainfall like Jaisalmer, Barmer and Bikaner are suitable mainly for afforestation and pastures involving horti-pastoral and silvi-pastoral, and agroforestry systems involving trees, perennial grasses and grain legumes. The existing water harvesting systems like **Khadins** should be utilised for growing more remunerative crops with low water requirements, like mustard, gram and safflower, instead of wheat. Appropriate soil and moisture conservation measures dovetailed to scientific crop management practices like timely sowing, right choice of crops and varieties matching the rainfall pattern, optimum plant population and fertilizer use matching the moisture availability in the soil, timely and effective rodent and other pest control measures, harvesting crops at physiological maturity etc., should ensure remunerative yields of dryland crops. Using the dry farming technologies evolved at various universities and institutions, it should be possible to improve and stabilize crop production on drylands during years of normal and below normal rainfall. In fact adopting the philosophy of "chain recuperation", the native sources of nutrients have to be harnessed.

Introducing tree species in the agricultural fields of Rajasthan is not new to this region. It was meant not only to cover the risk of crop failure but also to meet the demand of fuel, fodder and timber. Our farming ancestors knew that trees also improved the physical and fertility conditions of the soil. Realizing the benefits of these synergistic association, this has been the major research thrust in the Central Arid Zone Research Institute. Some of the promising tree species identified for this region are **Prosopis cineraria**, **Tecomella undulata**, **Acacia senegal**, **A. nilotica**, **Zizyphus nummularia** and **Salvadora persioa**, etc. Intensified research efforts are still needed to study tree-crop association suitable for different agro-climatic mileus.

Desert Ecosystem

India can claim to be one of the very few countries to develop awareness of the problems of arid regions in particular. In appreciation of the development needs of desert areas, the Government of India and the State Governments have taken a number of steps. The Desert Development Board was established in 1960s to plan and review the desert research and development programmes. The Drought Prone Area Programme (DPAP) represents another major effort at the national level to help develop arid areas on priority basis. Looking to the importance of the problem, the Indian Council of Agricultural Research established the Central Arid Zone Research Institute at Jodhpur, Central Sheep and Wool Research Institute at Avikanagar, National Centre on Camel Research at Bikaner for this region particularly, although other institutes like Indian Grassland and Fodder Research Institute at Jhansi, Central Soil Salinity Research Institute at Karnal, Central Research Institute on Dryland Agriculture at Hyderabad are also engaged in development of technologies specific to this region. At least three State Agricultural Universities, of course Rajasthan Agricultural University is one of these, are primarily concerned about the research and development activities for this arid zone. The State Governments have also launched extensive afforestation and grassland improvement programmes and the Rajasthan Government have established a separate department and Agricultural University exclusively for overall development of the region and particularly of this risk-prone arid region.

Here, I would like to mention that apart from good work undertaken in your university over the last 30 years CAZRI is also engaged with resource monitoring and resource utilization research and developmental technologies to control desertification and to use land and water resources more efficiently.

In desert region, most of the farmers are dependent on mixed farming. But, we all know, the yields of most crops are quite poor e.g. the average yield of pearlmillet —a major crop of this region—is hardly 5 quintals per hectare and that too not sure in the drought years as the one experienced in 1987. Although technologies have been developed for moisture conservation, fertilizer use, better seed etc. which can increase the yields 3-4 times but the concern is of the drought years as experienced in 1987. We have to develop a comprihensive farming system technologies encompassing fodder, foodgrains and fuel even for such lean periods.

As pointed out earlier, pasture is predominant component in all the land use systems of the desert region. It is, therefore, important to undertake studies on soil-plant-animal and soil-plant-human continuum. In this endeavour, alternate sources of rural income generation has to be sought so as to reduce the pressure of animal population in the region. Among others, these could be arid horticulture, brackish fish farming and sericulture. These perishable new products need to be processed at rural level of achievable ecologically sustainable livelihood. Probably a change in strategy from one of agricultural growth alone to integrated rural development encompassing employment generation and poverty alleviation may be worthwhile.

Another area where research efforts would need to be stepped up would be the medium-term weather forecasting to providing early warning system and to adopt contingency plans for the stress conditions expected. With the introduction of Super Computers and Satellites, we can and have achieved some success in this regard. Also research needs to be intensified on selection, breeding of shrubs and trees for desert areas to fulfil the triple needs of fuel, fodder and fertilizer, and development of crop varieties which suit the rainfall situations.

Animal Husbandry

The contributions of animal husbandry and dairying to agrarian economy is very large under arid and semi-arid climatic conditions. The low rainfall and other environmental factors in these areas provide natural grazing areas for cattle. This has enabled the evolution of the best breeds of livestock in this region. The best dairy cattle breeds viz. Sahiwal, Red Sindhi, Tharparkar, Gir and Rathi, best dual-purpose and draft breeds viz. Hariana, Nagore and Kankarej, best breeds of dairy buffaloes viz. Nili Ravi, Murrah, Surti, Zaffarabadi and Mehsana, best breeds of carpet wool sheep, Nali, Magra, Pugal, Chokla, Marwadi, Jaisalmeri and Patanwadi, and best breeds of goats, viz. Beetal, Jhakarana, Surti, Marwadi and Kutchi, as well as best breeds of camel and horses, have evolved in this region.

The region is one of the largest producers of milk, wool and meat. It is the major source of supply of live animals, specially sheep and goat, for slaughter in large metropolitan cities. Little has been done for organizing livestock-product-based industry in the region, and thus the region has only been responsible for production but not in processing and marketing of livestock-based products. There is a great need and possibility of developing livestock-based rural industries specially related to dairy processing, wool processing and meat processing, which will not only reduce the cost of transportation but will add value, improve shelf-life and increase the rural job opportunities, which are so seriously required in this area

During the past decades concerted efforts have been made to build a National Food Security System which has taken care of the human needs in years of severe drought and natural calamities in drought-prone areas like Rajasthan. Unfortunately adequate efforts are yet to go into building a similar programme for providing the minimal nutritional requirements of cattle and other animals during years of deficit rainfall. The need for a animal-feed security system hence assumes great importance, particularly in this State. In fodder-surplus states like Punjab, it should not be difficult to establish fodder banks based on ammoniated straw-grass densely baled.

Since we are now realizing the need for better appreciation of indigenous genetic resource and their conservation and improvement, it is necessary that the State Government and the Rajasthan Agricultural University develop programmes for evaluation of cattle breeds like Nagore, Tharparkar and Rathi in collaboration with the National Bureau of Animal Genetic Resource.

The region has peculiar problems of adaptation, and Nature has provided indigenous breeds with adaptive mechanism for low protein contents in feed and poor quantity of drinking water. It is necessary that the adaptation to desert ecology is not lost sight of in our livestock improvement programmes. It is also necessary that greater emphasis is laid on animal health specially disease surveillance and monitoring of important diseases of livestock under desert ecology.

The ICAR has created adequate research infrastructure through its Institutes on sheep and wool (CSWRI), camel (NRCC), and the Central Arid Zone Research Institute, which are located in Rajasthan. It is also supporting the Rajasthan Agricultural University in programmes for improvement of sheep and goat.

Bikaner can be an excellent centre for livestock research with the availability of a large campus of CSWRI and NRCC and the College of Veterinary Science of the University. With such an infrastructure, I hope significant steps will be taken to increase animal productivity in the State.

Dissemination of Technology

Years of research endeavour in the state both the central and state research agencies has evolved innovative technological packages for the improvement of productivity on a sustainable basis. Earlier efforts to demonstrate findings through simple and single-point demonstrations have not borne the desired results. It would be necessary to create ecologically sound, technically feasible and economically viable technologies which can be easily replicated at the village level. It would, therefore, be essential to train men in systems analysis and preparation of such predictable models. Unless this is attempted on an adequate scale, the available research data are not likely to reach the agricultural clients of these areas whose resources are very meagre. □

Teaching-Writing Model

(*Continued from page 8*)

evokes mixed response which is generally the fate of a message.

Conclusion

Teaching-Writing Model presented here is based on Gerbner-Fiske general model of communication. As communication process passes through seven stages, so do teaching and writing process pass through the seven stages. Since teaching and writing are closely associated with each other they can be pursued almost in a similar fashion.

The process begins with the selection of a problem which is properly examined for its feasibility. Gathering information from different sources is followed by objectives to be achieved. These objectives which can also be stated in the form of questions help in sifting supporting material. In accordance with objectives the information is put in order. Lastly, the teaching material format of course should be more precise, tight, simple, and rather a capsule of information. On the other hand, written material format can afford to be complex and detailed so that reader faces minimum difficulty in getting the message. □

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Tata Institute of Fundamental Research

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INVITES APPLICATION FOR ADMISSION AS RESEARCH SCHOLARS FOR THE YEAR 1989-90

Advt. No. 9/89

The Institute offers a programme of Graduate Study in several branches of Physical, Chemical and Computer Sciences. The prime objective of this programme is to train scholars in the methodology of fundamental research. The work also enables the scholars to earn a Ph.D. degree of Bombay University. Selection for the academic year 1989-90 will be made on the basis of interviews to be held in Bombay between July 1 and July 15, 1989. The academie programme will start in the first week of August 1989.

The basic requirements for admission are exceptional talent and motivation for research. Candidates who are keen to pursue a research career and who have an outstanding academic record, need apply. Candidates should have completed Master's Degree (M.Sc., M.Tech. etc.) before joining this programme (students who have appeared for the Master's degree examination, may also apply). For Physics, candidates with Master's degree in Applied Mathematics or Astronomy may also apply. B.E.'s and B.Tech.'s may also apply for Computer Science and Solid State Electronics. Exceptional B.E.'s, B.Tech.'s and B.Sc.'s may also be considered for other areas, if they should be interested. For Chemical Physics, candidates with Master's degree in Chemistry, Physics or Bio-Chemistry, may apply.

Admission is highly selective and during this year only a few candidates may be admitted in each of the following areas :

THEORETICAL STUDIES	:	Theoretical high energy physics; nuclear theory; condensed matter theory; theoretical astrophysics.
EXPERIMENTAL SPACE SCIENCES	:	Cosmic rays and solar physics; high energy astrophysics; gravitation.
ASTRONOMY	:	X-ray & gamma ray astronomy; optical astronomy; infrared astronomy; radio astronomy;
EXPERIMENTAL HIGH ENERGY PHYSICS	:	High energy cosmic rays; experimental high energy physics using underground detectors, bubble chambers and high energy accelerators abroad.
EXPERIMENTAL ATOMIC AND NUCLEAR PHYSICS	:	Nuclear interactions, heavy-ion collisions using pelletron, nuclear spectroscopy; nuclear reactions, atomic collisions.
EXPERIMENTAL SOLID STATE PHYSICS AND SOLID STATE ELECTRONICS	:	Magnetism; superconductivity; low temperature physics; semiconductor physics.
CHEMICAL PHYSICS	:	Bio-inorganic chemistry; fast reactions: energy transfer; molecular biophysics; laser spectroscopy.
COMPUTER SCIENCES	:	Speech and digital systems; computer communication; theoretical computer science; logic programming; programming methodology,

After completion of the programme, outstanding candidates have the possibility of absorption into the regular academic staff of the Institute.

More details about fields of study in each area will be supplied with the application form.

Financial Assistance : Research Scholars will be paid a fixed monthly honorarium of Rs. 2200/-. Based on satisfactory performance, the honorarium may be raised to Rs. 2500/- per month subsequently. Appointments are made for a year at a time but are normally renewable annually upto 5 years, subject to evidence of satisfactory performance.

Travelling Allowances : Each candidate called for interview, will be paid $1\frac{1}{3}$ railway fare each way by second class (not air-conditioned) and a sum of Rs. 35/- as halting allowance for the day on which he/she is interviewed.

Applications : Applications in the prescribed form which can be obtained from the Administrative Officer (Establishment) on request alongwith 24 x 11 cms. self-addressed stamped (Rs. 1.40) envelope should reach the Institute not later than May 31, 1989. Requests for the application forms will be entertained only upto May 15, 1989. In the application, the candidate must clearly specify his/her **area of interest.**

Orientation Programme for Varsity and College Teachers

The Academic Staff College of the University of Jodhpur recently conducted its seventh Orientation Programme at which 28 college teachers from 19 Institutions, 7 of them from outside Rajasthan, namely, from Narsinghgarh, Ganj Basoda and Vidisha of Madhya Pradesh and Kalimpong in West Bengal participated.

Speaking on the occasion, Dr. M.L. Mathur, Vice-Chancellor of the University of Jodhpur, emphasised the usefulness of the Orientation Courses and said that the NPE had provided opportunities to teachers for their professional and career development as it recognised that the quality of education depended on a teacher's motivation. And to enhance this motivation of teachers, specially designed Orientation Programmes in teaching methodologies, pedagogy, education, psychology, awareness of physical, social and economic environment and problems facing our society, were desirable.

Inaugurating the Programme, Dr. B.S. Sharma, Pro-Vice-Chancellor of the Indira Gandhi National Open University, said that Distance Education was being recognised as an alternative strategy for evolving a complete system of Education. As a system, distance education brings distance teaching and learning together to make education more significant. Distance education has generally been understood as sophisticated replacement of correspondence education but actually it is not. Correspondence education is characterised by two constitutional elements i.e. pre-produced learning materials and mediated communication between student and supporting organisation, while concept of open education has various facets like open access, open entry, open choice of subjects and even being open at any level. Citing classified data, Dr. Sharma analysed the past and present of education system in India and emphasised the need of open education. He stressed that the objective of this effort should be to bring about a social transformation of the conventional degree courses through redesigning of programmes to provide greater vocational content with emphasis on proper work culture and attitudes. He also stressed that for nearly 90% of students joining Universities and Colleges, the first degree is a terminal stage and for them the courses should be relevant and related with their employment needs. He was confident that with the flexibility in the structure of its programmes and operations, the Open University System can produce a number of relevant courses which can also be adopted by the formal system. The alternative is, therefore, that the formal as well as the distance education system should work in conjunction with each other. He suggested that provision should be made by both the systems for mobility of students from one to other through appropriate system of credit transfer.

Broad content areas of the course were Organisational Behaviour and Environmental Awareness, Educational Psychology, Personality Development and Pedagogy, Professional Ethics, Policy Making Process in Education, Effective Teaching and Research Skills, Educational Technology, Modern Management Techniques, Reference Skills, Financial Administration, Services Rules, Management of Student Services, Student Problems, Distance Education, etc. A Panel discussion was held on Higher Education—Present Scenario. Group discussions were organised on Economic Environment; Community Development; and Problems of Higher Education.

Methodologies like—'In basket' exercise and interactive video methods were deployed during sessions on developing presentation skills.

A Seminar on 'Improving the Functioning of University/College' was also organised during the Programme.

The discussion on 'Problems of Higher Education' which involved two senior university students from MBA and Science disciplines and also two prominent persons from among parents / guardians/ Professors and the Vice-Chancellor, Prof. M.L. Mathur.

Some of the eminent resource persons invited for the Programme were Professors M.S. Gore of Bombay, Professor Inder Dev from Raipur, Professor Sachidanand from Patna, Professor R.K. Arora from Jaipur and Shri Mathura Das Mathur of Jodhpur.

In his valedictory address, Professor S.C. Goyal, Ex-Vice-Chancellor of the Jodhpur University, stressed the need for improvement in the quality of teaching. He said that non-resident Indians who constitute only half per cent of the population in USA have given excellent performance in their chosen fields. He exhorted the participants to make themselves 'ideal' teachers in order to get results from their students.

Students are keen observers,

therefore, pure logical teaching seldom produces empirical results. A teacher, he added, should cultivate humility, necessary for search of truth, and a way of life for Science without 'faith' is 'lame' and 'faith' without Science is 'blind'. Professor Goyal advised the teachers to be fearless and inculcate positive thinking, 'Shed fear, Shed Contempt' he concluded.

Women's Studies as an Academic Discipline

The Mother Teresa Women's University recently organised a two day seminar on "Women's Studies as an Academic Discipline" at Kodaikanal. Dr. (Mrs) J.K. Pillai, Vice-Chancellor, who inaugurated the seminar, pointed out that Women's Studies as an infant discipline was today in a transitional stage deriving a new content, structure and methodology of its own. All knowledge in the past had been defined from a male perspective. Existing disciplines, she felt, must be transformed to introduce Women's dimension at appropriate places. As Women's Studies demanded a rigorous employment of cross/trans/multi disciplinary approach, she advocated researchers to evolve a package of methodologies to analyse their problems. Since the end of research done in Women's Studies was to improve their status, it should be geared to action. In this context the University was formulating extension programmes as a follow-up to the micro-studies on women undertaken by the University.

Dr. Mary T. David, Prof. and Head, Department of English, Mother Teresa Women's University, said the focus of the seminar was to explain and define basic concepts, the objectives and scope of women's studies. Its main directive was to aid the scholars researching and specializing in this field.

Talking on the future of Women's Studies, the eminent short story writer Dr. Prema Nandakumar asserted that both as a discipline and as a powerful strategy for action, Women's Studies though a late-bloomer in the accident has certainly come of age. The crying need of the hour she said was an expansion of Women's Studies with a purpostive thrust.

Dr. G.P. Rao, Prof. and Head of Management Studies, Madurai Kamaraj University, speaking on the materialistic style of management pointed out that the material attributes and characteristics like compassion, trust, empathy, possessiveness etc., were determinant factors that contributed to making able and skilled administrators. Women can be, he felt, trained to become efficient entrepreneurs. But it was unfortunate that women students who topped the university managerial examinations either opted to drop out because of matrimonial interference or were content to assist their entrepreneur husbands in a secondary role.

The Seminar also emphasized the need to restructure the existing curriculum which was obviously framed from the male point of view to include women's contributions and achievements, their experiences and other related issues and concerns. It was also resolved that women should be conscientized through various social groups and voluntary organizations, media and other international agencies such as ILO/UNICEF about their significant contribution to the welfare of the family and the nation.

Over fifty delegates participated in the seminar.

Reframing of M.Tech. Courses Recommended

A committee, appointed by the Council of Indian Institutes of Technology and headed by Prof. S. Sampath, Chairman of RAC (Recruitment Assessment Centre), Defence Research Development Organisation, has pointed out serious weaknesses in the postgraduate curriculum of the IITs and has recommended its thorough restructuring including scrapping of certain courses. In its report presented to the Council recently, the committee has said that while certain M.Tech. courses are 'irrelevant and redundant', many others are 'simple' academic exercises too sketchy in content and hence not of much value. This has led to a situation where, while the number of M.Tech courses offered in the IITs has increased considerably, there have been few takers for them. Students drop out midway through many of the courses causing wastage of resources, the report notes. The indifferent quality apart, another reason for the generally poor intake of these courses is that they do not have any 'added market value.'

A major recommendation of the committee is that if the retention rate in an M.Tech course for two consecutive batches is less than 50 per cent of the sanctioned intake then it should be scrapped after a review by experts. It has also suggested that in highly specialised areas where M.Tech courses are 'neither feasible nor necessary' the IITs should offer intensive short-term courses to be specifically sponsored by 'interested agencies'.

The thrust of the committee's report is that postgraduate studies at IITs should be 'user-oriented' which requires more effective linkages between the IIT laboratories and the industry. It calls for 'reorganising, restructuring and redesigning' of the existing M.Tech. courses and says that these should be conducted in close collaboration with the industry and R&D organisations. The report is in favour of M.Tech. projects being sponsored by user-agencies which would also make their facilities available for training programmes.

To make an M.Tech. degree more attractive for engineering graduates, the committee has recommended that it should be prescribed as the minimum qualification for recruitment to senior engineering positions both in the Government and the private sector. A case is also made out for offering higher salaries and better career prospects to M.Tech. degree holders.

On the question of setting up industrial foundations, the committee has said that these could be set up in a few IITs on an experimental basis with each IIT developing its own model. It is against making any changes in the JEE system until the proposed National Testing Service becomes fully operational; and as for revision of fee the committee says there is a case for increasing it and a decision could be taken in consultation with the IITs.

IMM to Start New Courses

The Institute of Modern Management (IMM), Calcutta is reported to have recently started a number of new courses. It has also planned to start several courses for women. The Centre for Career Development of Women has been et up for this purpose.

Set up in 1974, the institute is un by leading academicians and administrators to provide job-oriented training in Management and Computer. The objective of the institute, reportedly, is to prepare mature young persons in management positions.

According to Dr. Susanta Mukherjee, Director, the institute offers different types of courses including a one-year course in Business Management, a one-year post-graduate diploma course in Mass Communication, which is first of its kind in eastern India, one-year course in Marketing open to graduates and prospective graduates, one and a half year diploma course in Computer Applications and one-year correspondence course in Journalism.

The institute proposes to start courses in Advertising and Public Relation from July 1989. A course in Tourism-Travel-Hotel Management has already been started.

A one-year course in interior decoration with practical training courses that will fetch good jobs for women is on the anvil. For the purpose of data processing, a six-month Computer course will also be introduced for women.

A certificate course in Travel Management and a six month course in Public Relations are the other courses proposed to be started for women.

ICMR Awards Announced

The Indian Council of Medical Research has selected 14 scientists for various ICMR awards in recognition of their outstanding contribution in the field of medical research.

Dr. Kamala Khnaswamy of National Institution of Nutrition (NIN), Hyderabad, has been awarded the Dr. (Mrs) Kamala Menon Medical Research Award for "internal medicine" for her work on drug metabolism and disposition in human malnutrition.

Dr. Saroj Mehta of PGIMER, Chandigarh, has been awarded the Kshanika Oration Award for research in the field of protein energy malnutrition.

For his research work on leprosy, Dr. V.N. Sehgal of Maulana Azad Medical College, New Delhi has been awarded the Jalma Trust Fund Oration Award.

Dr. Kamala Dhall of PGIMER, Chandigarh, has been awarded Smt. Swaran Kanta Dingley Oration Award for her work in the sphere of reproductive biology.

Dr. (Mrs) P. Bhaskaran, NIN, Hyderabad, has been awarded Prof. B.K. Aikat Oration Award for tropical diseases for her research work on comprehensive studies on measles.

For her significant work on cardiovascular pathology and immunopathology, Dr. Prem Chopra of All-India Institute of Medical Sciences (AIIMS), New Delhi has been given the Amrut Mody Unichem Prize for Cardiology.

Dr. Bhusan Kumar of PGIMER, Chandigarh, has been awarded the Lala Ram Chand Kandhari Award for dermatology and sexually transmitted diseases (STD) for his important findings in the field of applied and clinical research in dermatology and STD.

Shakuntala Amir Chand Prizes have been awarded to Dr. Sashi Wadhwa of AIIMS for her work on developmental biology, Dr. U.N. Das, the Nizam Institute of

Medical Sciences, Hyderabad, for his work on influence of prostaglandin on genetic damage induced by radiation and chemicals, and Dr. H.S. Sharma, Institute of Pathology, University Hospital, UPPSALA, Sweden for his work on blood brain barrier.

Former significant findings on turmeric as a cancer preventive agent, Dr. M. Nagabhusan of Cancer Research Institute, Bombay has been awarded the Raja Ravi Sher Singh of Kalsia Memorial Cancer Award.

Dr. S. K. Chaturvedi of NIMHANS, Bangalore, has been awarded the Tilak Venkoba Rao Award in psychological medicine for his work on chronic pain and psychosomatic medicine.

Dr. Chetna Vaishnavi of PGIMER, Chandigarh, has been awarded Dr. C.G.S. Iyer Oration Award in leprosy for her research work on experimental and clinical studies in leprosy.

Dr. S.K. Sarin of G.B. Pant Hospital, New Delhi has been awarded Dr. D.V. Datt. Memorial Oration Award in liver diseases for his work in the area of postal hypertension — entiology, profile, haemodynamics and management in India.

New Colleges for Health Sciences Varsity

Dr. L. Suryanarayana, Vice-Chancellor, University of Health Sciences, said that the University was making preparations to start two more dental colleges, one at Tirupati and the other preferably at Visakhapatnam. He said the Central Health Council had given its consent to set up these colleges.

Dr. Suryanarayana, who is also the Vice-Chairman of Yoga Adhyayana Parishad, said that the State Government had earmarked Rs. 60 lakhs to the Parishad, besides 11 acres of land in Hyderabad, to start a yoga and naturopathy college from the next academic year.

Dr. Suryanarayana said that the University would start a nursing college at Vijayawada from the next academic year. The University was also planning to offer a two or three year degree course in medical laboratory technology, he added.

Science Research Council

The Government of India is reported to have set up a Science and Engineering Research Council (SERC) to support research and development in frontline areas of science and technology. This was announced by the Minister of State for Civil Aviation, Shri Shivaraj Patil, in the Lok Sabha recently. He said that an integrated approach will be adopted in promoting this activity through inter-agency involvement.

The SERC programme has led to creation of new research institutions and research groups in important areas thus opening up more avenues for scientists, the Minister said.

Centenary Celebrations of Duty Society

The Duty Society of the Aligarh Muslim University completes 100 years this year. For years, the society has made a significant contribution to the growth and development of the Aligarh Muslim University.

A function was recently held in New Delhi to felicitate the Societ Speaking on the occasion, Mr. Sye Hashim Ali, Vice-Chancello of the Aligarh Muslim University said that over the past 100 year the Duty Society provided substantial financial assistance to mor than 20,000 deserving student The society also gave the AMU th magnificient Sulaiman Hall, a ha of residence, and the Universit Post Office building, he sai Above all, the society founded b Sahibzada Aftab Ahmad Khan, wa mainly responsible in taking th message of the Aligarh Movemen from the campus of the Mohamma dan Anglo Oriental College t every nook and corner of the the undivided India.

Mr. P. Shiv Shankar, Unio Human Resource Minister, was th chief guest. Also present on th occasion were Professor Mooni Raza, Vice-Chancellor of Dell University and Alhaj Obaidu Rehman Khan Sherwani, oldes living member and the curren president of the Duty Society.

Vacant Reserve Seat

The policy of reserving seats fo the Scheduled Caste/Tribe student in highly specialised institutions o higher learning does not appear t have worked at least in the IITs where, according to an officia study, the number of such seat remaining unfilled every year i alarming.

This is despite the variou incentives offered to the SC/S candidates in the form of lowe qualifying marks in the entranc examination, the facility of a on year preparatory course for thos who are not able to get even th reduced qualifying marks, an exemption from paying the tuitio fee. The package of incentives al ncludes a monthly pocket allow- nce of Rs. 70 subject to certain onditions, free mess facilities, and rain fare from their place of resid- nce to the IIT where they have een admitted.

Yet the response has been so oor that over the past five years, he number of unfilled seats in the eserved category has ranged from 39 to 414 which the study says ppears to be alarming considering hat a total of (only) 1800 seats are vailable for all categories of tudents in the five IITs.The study, nitiated by the Union Education Ministry, notes that the number of SC/ST candidates appearing for the Joint Entrance Examination (JEE) is barely seven per cent of the total examinees. "It would therefore seem to be essential that major efforts are made to ensure an increase in the number of candidates who appear for the JEE," the study says.

A total of 22.5 per cent of the seats in B.Tech. and M.Sc courses at the five IITs are reserved for the SC/ST students : 15 per cent for the SC and 7.5 per cent for the ST candidates. The quota for M.Tech. is also the same.

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AUTONOMY IN ACTION

Technical Teachers' Training Institute, Madras

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Technical Teachers' Training nstitute, Madras is an autonomous nstitution set up by the Ministry f Human Resource Development, overnment of India, for improv- g the quality of technical educa- on system in the southern region. he wide range of its activities clude developing curricula of urses; instructional methods, aterials and media; testing and aluation procedures; and strate- es for institutional management d administration, besides offering ff training through long and ort term programmes.

The University of Madras nted autonomy to the Institute 1987 for the degree programmes— chelor of Technical Education Tech. Ed., started in 1970) and ster of Technical Education Tech. Ed., yet to be started). e one year, Bachelor of Techni- Education degree programme designed for teachers with a ree in engineering/technology postgraduates in Physics/ mistry/Mathematics/ Computer nce. This course is primarily ed at developing competencies relating to instructional planning, implementation, management and student performance assessment for improving the quality of teaching-learning processes.

Students of the B.Tech. Ed. course are inservice teachers from technical institutions in the southern region. They are sponsored by the Directorates of Technical Education of the States. The sponsored students are paid a stipend of Rs. 450 per month and a contingent allowance of Rs. 200 for the entire duration of the course by the Institute besides their salary which is paid by their parent body.

A one week induction programme is organised for the students at the commencement of the course with the objective of enabling them to become familiar with the rules and regulations of the course and institutional facilities and resources. During this programme, the students are introduced to the faculty and the various departments and laboratories.

The academic programme for every subject of the course is planned, designed and implemented by a suitable member of the faculty identified by the faculty council of the Institute, who is assisted by an interdisciplinary team of faculty members. This team draws up the detailed plans for teaching the subject. These plans include schedules of instructional activities such as lectures, tutorials, discussions, field visits and details of tests and assignments for internal assessment. They indicate the title/content of the topic for each contact period, the approaches for instruction, dates of tests and topics/questions for assignments. These plans are made available to the students at the commencement of the course itself and they enable the students to prepare in advance for interactions in every teaching session including tutorials, tests and practice sessions.

The teaching methodologies employed are user-friendly and generally resource-based. Individual and group projects are undertaken by students under the guidance of identified faculty members. Discipline-wise tutorials are arranged to provide for and to ensure application of principles and theories to specific subjects. The ratio of lectures to tutorials is about 1 : 3 in the various subjects. One session is set apart for providing feedback to the candidates after each test and this is included in the course schedules. Prep-prepared cyclostyled hand-outs are made available to the students, wherever necessary, for the topics planned in the schedule. The overall coordination and monitoring of the course is entrusted to a senior member of the faculty of the Institute. Feedback on the various aspects of the course is obtained at the end of each semester and the information so obtained is used for revision/modifications in the course curriculum and its implementation.

Yours etc.,
(Prof.) T. Subbarao
Principal
Technical Teachers Training
Institute, (Southern Region)
Taramari P.O., Madras-600 113

News from Agril. Varsities

TNAU to Collaborate with IFPRI

A 5-year Collaborative Research Project for Tamil Nadu Agricultural University (TNAU) on "Rural Infrastructure and Agricultural Growth" at a cost of Rs. 2.54 lakhs has been sanctioned by International Food Policy Research Institute (IFPRI), Washington, D.C. through the Government of India.

The project aims at :

(i) Measuring the rural household and village levels on the impact of hard/soft infrastructure on commercialisation and specialisation in agricultural production, marketing and processing, on rural incomes and employment and on patterns of consumption.

(ii) Analysing patterns of private sector investment in soft infrastructure and its relationship to different patterns of public sector investments and hard infrastructure.

(iii) Based on the above, the TNAU will identify the linkages between rural infrastructure and other economic activities which can serve as a basis for drawing policy implications about optional investment patterns in infrastructure development to maximise agricultural sector growth.

In this project, the IFPRI and the University of Madras will closely collaborate with Tamil Nadu Agricultural University.

According to Dr. S. Jayaraj, Vice-Chancellor of Tamil Nadu Agricultural University, such close collaboration with International Institutes and reputed universities of our country would enable each other in not only sharing of research ideas but also pave way for understanding the global farm research systems in the proper perspective.

TNAU Designated BIS User Centre

The Government of India, Ministry of Science and Technology, has sanctioned Rs. 6.50 lakhs for Tamil Nadu Agricultural University to establish the user centre under Biotechnology Information System (BIS) at Coimbatore. With the establishment of such centre, the University will fulfil the growing need of information of a large spectrum of scientists working in different areas of Biotechnology at Research and Development Centres, Universities and Industrial Corporations at the National level and act as a terminal node of the Biotechnology Information System.

The Tamil Nadu Agricultural University, as the user centre, will have the responsibility to get online/offline information from the Data Information Centres (DICs) and other centres to meet the end user's specific requirements. It will mainly receive information from Data Information Centres (DICs) and the access for information from Data Information Centres (DICs) is facilitated through Department of Telecommunication (DOT) Communication facility using moderns and FAX system.

Under this programme, the University will procure a micro computer system and printer for Rs. 2 lakhs and FAX System for Rs. 1 lakh. It will be in a position to provide information to the end users through hardware and reprographic facilities.

It will facilitate organising information dissemination services including data retrieval based upon their own holdings of data and on the utilisation of information services on other Data bases available at the Data Information Centres (DICs).

It will also ensure developing relations and cooperation with Data Information Centres (DICs) and other information centres in building up resource Data bases/Information sharing in the related areas of Biotechnology. Research on computerised information handling, development of software manpower development in the area of bioinformatics will also be taken up by Tamil Nadu Agricultural University.

Using Saline Water for Maize

The Tamil Nadu Agricultural University recently conducted a field experiment to evaluate the various management strategies in the use of Saline water for Maize Crop. Application of 25 per cent of extra dose of nitrogen, Zinc sulphate at 25 kg /ha. and farm yard manure at 25 t/ha. either alone or in combinations over and above the check basis, ridges and furrows and flat bed furrow type of field management practices, were composed in a saline soil (E.C. 3.8 d SM^{-1}) being irrigated with a well water having an electrical conductivity of

3.5 d SM^{-1}. A spectacular grain yield increase of 63 per cent was recorded in the treatment receiving the farmyard manure and Zinc sulphate under the ridges and furrow method of irrigation, over and above the check basis method of irrigation with normal N, P and K application (control). This was followed by flat bed furrow method of irrigation with farm yard manure and Zinc sulphate application which registered 59 per cent of higher grain yield over the control. Both the above treatments reduced the concentration of Sodium and Bicarbonate ions in the respective treatmental plots by 45 to 50 per cent of the initial content as compared to the control. The cost of Zinc Sulphate per hectare will be around Rs. 300/-

News from Abroad

Internship in Distance Education

The Board of Governors of the Commonwealth of Learning, at its recent meeting held in New Delhi, announced an internship scheme for top educationists in Commonwealth countries involved in distance education to familiarize them with the latest developments in the field. The programme is to be developed in consultation with the Government of British Columbia and is expected to be of six weeks duration.

The Board, which met for the second time since its inception in September last, also decided to introduce diploma or degree courses on the practice of distance education through the help of four institutions—Deaken University, Australia, University of London with the International Extension-College, the Open Learning Agency, Canada, and the Indira Gandhi National Open University, New Delhi. Other courses to be includ-d would be agriculture and rural levelopment, and one on maritime ssues. Bangladesh, Tanzania, outhern African countries and igeria have also been promised upport by the Commonwealth of earning.

Lord Briggs, Chairman of the Board, said that the meeting was held in India because of the work done by the Indira Gandhi National Open University and since distance education offered great possibilities in this country.

Speaking specifically of the IGNOU, Dr James A. Maraj, President of the Commonwealth of Learning, said that a wealth of material available with the Commonwealth of Learning would be provided to the university. Ways to strengthen links between IGNOU and its 12 regional centres were also being worked out, Dr. Maraj added.

News from UGC

INSAT-1B Programme of UGC

Between 11th May to 19th May, 1989 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV Network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

11.5.89

"Introduction to Computers —VI"
"Secrets of Greenland Ice"
"The Man and His Writing—Mulkraj"

12.5.89

"Story of Our Universe—V"
"Vedic Mathematics—II"
"Red Wolves Return to Nature"

13.5.89

"Meaningful Sounds—II"
"Introduction to Indian Music—II"
"The Physics of Skating"

14.5.89

No Telecast

15.5.89

"Classical Mechanics—VII"
"Drip System"
"Vermi Compost Part I : The Might of the Small"

16.5.89

"Chemistry of Man Made Fibres—III"
"The Ethology of Human Beings"

17.5.89

"Wind Energy"
"German Studies on Indology"
"Respiratory System in Animals"

18.5.89

"Introduction to COBOL—I"
"Challenging the Elements"
"How a Play is Staged"

19.5.89

"Story of Our Universe—VI"
"Comet : The Indian Connection"
"Pesticides—The Environment"

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month', while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research Scholars and students of education are welcome to use these resources. The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Library & Information Science

1. Gupta, Awadh Bihari. *An investigation into the characteristics of research literature used by medical scientists in India : A statistical analysis of bibliographic citations of M.D. theses.* BHU. Dr. Y.P. Dubey, Department of Library and Information Science, Banaras Hindu University, Varanasi.

2. Prasad, H.N. *Job satisfaction among the professional employees of the Library : A study.* BHU. Dr. S.N. Singh, Department of Library and Information Science, Banaras Hindu University, Varanasi.

Psychology

1. Acharya, Tilak Raj. *A study of certain personality and socio-demographic determinants of stress coping strategies.* HP. Dr. Sagar Sharma, Department of Psychology, Himachal Pradesh University, Shimla.

2. Asthana, Hari Shanker. *Functional assymetris in psychiatric patients.* BHU, Dr. M.K. Mandal, Department of Psychology, Banaras Hindu University, Varanasi.

3. Gautam, Shubha. *A study of some personality characteristics of patient suffering from prolonged diseases and tuberculosis.* HS Gour. Prof. Jai Prakash, Department of Psychology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

4. Gurmeet Kaur. *Psychological differentiation.* BHU. Dr. R.C. Mishra, Department of Psychology, Banaras Hindu Universtiy, Varanasi.

5. Janardhanan, A.K. *A study of levels of stress and its management in Army personnel.* HS Gour. Prof. Jai Prakash, Department of Psychology, Dr Harisingh Gour Vishwavidyalaya, Sagar.

6. Krishna, Archana. *The role of anger and anxiety in essential hypertension.* HP. Dr. Sagar Sharma, Department of Psychology, Himachal Pradesh University, Shimla.

7. Mishra, Shalini. *Psychological stress : Type A behaviour and myocradial infraction.* HS Gour. Prof. Jai Prakash, Department of Psychology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

8. Mishra, Surya Prasad. *A comparative study of organisational role stress and their coping strategies in commercial educational administrative organisations.* HS Gour. Dr. Y.S. Bagrecha, Department of Psychology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

9. Pandey, Geetika. *Individual difference in hemispheric assymtry.* BHU. Dr. N.K. Mandal, Department of Psychology, Banaras Hindu University, Varanasi.

10. Prasad, Shashi Ranjan. *Diagnostic discrimination.* BHU. Prof. R.R. Tripathi, Department of Psychology, Banaras Hindu University, Varanasi.

11. Sahay, Sunita. *Assessment of mental health of preschool children.* BHU. Dr. K.P. Shukla, Department of Psychology, Banaras Hindu University, Varanasi.

12. Singh, Archana. *Personality pattern of coronary, proneness exposure to ambient stress and locus of control.* BHU. Dr. A. Mukhopadhyay, Department of Psychology, Banaras Hindu University, Varanasi.

13. Singh, Rameshwar Prasad. *Insecurity, dependency*

self-confidence and self-esteem among adolescent in dual career. BHU. Dr. R. Verma, Department of Psychology, Banaras Hindu University, Varanasi.

14. Sinha, Madhu, *Yogic therapy.* BHU, Prof. R.R. Tripathi, Department of Psychology, Banaras Hindu University, Varanasi.

15. Vyas, Vasundhara. *Congruency and recall.* HS Gour. Dr. P.K. Purohit, Department of Psychology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

Sociology

1. Agrawal, Meena. *Women and career development : A sociological study of role adjustment, alienation and emerging life-styles of urban upper-class working women.* Banasthali. Dr. H.S. Saxena, Lecturer, Department of Sociology, Banasthali Vidyapith, Banasthali.

2. Jayasree, S. *Women in the unorganised sector.* Kerala. Dr. Jacob John Kattakkayam, Lecturer, Department of Sociology, University of Kerala, Kariavattom.

3. Mathur, Meenakshi. *Rural women and development : A sociological study of rural women's changing status and role as an impact of development programmes in villages.* Banasthali, Prof. Ram Ahuja, Head, Department of Sociology, Banasthali Vidyapith, Banasthali.

4. Sukumaran Nair, K. *Police-community interaction : A sociological perspective.* Kerala. Dr. G. Narayana Pillai, Prof. Department of Sociology, University of Kerala, Kariavattom.

5. Usha Devi. *Socio-psychological problems of divorced women.* Kerala. Dr. Jacob John Kattakkayam, Lecturer, Department of Sociology, University of Kerala, Kariavattom.

Social Anthropology

1. Das, Vishveshwar. *The transforming onge : An anthropological study of aspirations, motivations and inhibitions.* HS Gour. Prof. Samrender Saraf, Prof. Department of Anthropology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

2. Gangopadhyaya, Suklyan. *A socio-biological study of aggression.* HS Gour. Dr. A.N. Sharma, Lecturer, Department of Anthropology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

3. Mandal, Manoranjan. *The Oraons of Sudarban : A tribal in transition.* HS Gour. Prof. R.L. Bali, Department of Anthropology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

4. Meharban Singh. *Ak Bhartiya janjatiyagram : Hindu samajik sanskritik prabhavon ka vishleshnatmak adhyayan.* HS Gour. Prof. Samrender Saraf, Prof., Department of Anthropology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

Political Science

1. Choubey, Raghwendra Narayan. *Bharatiya rajnitik vyavastha.* BHU. Prof. P.D. Kaushik. Department of Political Science, Banaras Hindu University, Varanasi.

2. Gopinatha Pillai, K. *Political philosophy of Ram Manohar Lohia.* Kerala. Dr. K. Raman Pillai, Prof. and Head, Department of Politics, University of Kerala, Kariavattom.

3. Gurdip Kaur. *Guru Nanak's philosophy of politics.* Panjab. Dr, Darshan Singh, Department of Guru Nanak ikh Studies, Panjab University, Chandigarh.

4. Kalpnath Ram. *The conception of rights in Mahatma Gandhi.* BHU. Dr. Nalini Pant, Department of Political Science, Banaras Hindu University, Varanasi.

5. Manivasagan, Velauthapillai. *Local administration in the Dominion period of Sri Lanka : A development perspective.* BHU. Prof. Nalini Pant, Department of Political Science, Banaras Hindu University, Varanasi.

6. Singh, Binod Kumar. *Jan-sahabhagita evam gram panchayati rajya vyavastha : Nasariganj prakhand per adharit ek vishleshnatmak adhyayan.* BHU. Dr. V.P. Gupta, Department of Political Science, Banaras Hindu University, Varanasi.

7. Tripathi, Shree Nath. *Pt. Jawaharlal Nehru ka antar rashtravad.* BHU. Dr. N.N. Tripathi, Department of Political Science, Banaras Hindu University, Varanasi.

Economics

1. Gupta, Nivedita. *Open economics monetarism and its relevance to Indian economy.* BHU. Prof. D.K. Srivastava, Department of Economics, Banaras Hindu University, Varanasi.

2. Sinha, Manjubala. *Garibi unmulan karyakaram ka vyavsay vyavastha evam aye vitaran per prabhav : Khagaria Zile ka ek adhyayan.* Bhagalpur. Dr. S.L. Tulsyan, Department of Commerce, Koshi College, Khagaria.

3 Srivastava, Binita. *Indo-Soviet economic relations since independence.* BHU. Dr. S.C. Srivastava, Department of Economics, Banaras Hindu University, Varanasi.

Education

1. Maurya, Shyam Lal. *Swatantrata ke pashchat Uttar Pradesh mein Viswavidyalayea shiksha kee pragati ka alochanatmak adhyayan.* Avadh, Dr. G.S. Pandey, Department of Teacher-Education, K S. Saket, P.G. College, Faizabad.

2. Saxena, Madhu. *Swatantra Bharat mein shiksha aur samajik rajnaitik parivartan.* Dr. G.S. Pandey, Department of Teacher-Education, K S. Saket, P.G. College, Faizabad.

3. Singh, S. Kumar. *Radhakrishnan ka shiksha-darshan, aur Bhartiya shiksha ke liya iski prasangikta.* Awadh. Dr. G S. Pandey, Department of Teacher-Education, K.S. Saket P.G. College, Faizabad.

4. Tewari, Janardan. *Hindi sahitya ke pariprekshya mein swatantra Bharat kee samajik chunautiyan evam unke samadhan hetu prastavit shiksha ka adhyayan.* Avadh. Dr. G.S. Pandey, Department of Teacher-Education, K.S. Saket P.G. College, Faizabad.

Commerce

1. Banerjee, Ashok Kumar. *Working capital management in public enterprises : A case study.* BHU. Dr. S.P. Srivastava, Department of Commerce, Banaras Hindu University, Varanasi.

2. Gupta, Sudhir Kumar. *Corporate dividend policy in India.* BHU. Dr. M N.A. Ansari, Department of Commerce, Banaras Hindu University, Varanasi.

3. Jeevananda Das, R. *A critical evaluation of the working of service co-operative banks.* Kerala. Dr. M. Sarangadharan, Reader, Department of Commerce, University of Kerala, Trivandrum.

4. Rajmani Prasad. *Performance appraisal of regional rural banks : A case study of selected units.* BHU. Dr. O.P.

Rai, Department of Commerce, Banaras Hindu University, Varanasi.

5. Reza, Baghery Mohammad. *Performance appraisal of road passenger transport undertakings in Iran : A case study of selected units.* BHU. Dr. O.P. Rai, Department of Commerce, Banaras Hindu University, Varanasi.

6. Swain, Niranjan. *Industrial development of Orissa during plan period.* BHU. Dr. M.N.A. Ansari, Department of Commerce, Banaras Hindu University, Varanasi.

7. Tewari, Sunil Kumar. *Stock exchanges in India.* BHU. Dr. M.N.A. Ansari, Department of Commerce, Banaras Hindu University, Varanasi.

8. Upadhyay, Yadvendra Kumar. *Bharat mein lok upkram ka prabandh : Ek adhyayan.* BHU. Dr. D.N. Singh, Department of Commerce, Banaras Hindu University, Varanasi.

Home Science

1. Jessie Pooranchand, Leena. *A study of factors affecting development of valves among adolescents.* Banasthali. Dr. R.P. Singh, Head, Department of Education, Banasthali Vidyapith, Banasthali.

Management

1. Venkatesh Uma Shankar. *Institutional infrastructure for export promotion in India : A review.* BHU. Dr. R.C. Choudhary, Department of Management Studies, Banaras Hindu University, Varanasi.

HUMANITIES

Philosophy

1. Birendra Singh, *Jain darshan aur Bauddh darshan mein karm siddhant : Ek tulnatmak adhyayan.* BHU. Dr. B.N. Singh, Department of Philosophy, Banaras Hindu University, Varanasi.

2. Mrityunjay Singh. *Mahayan Bauddh darshan mein parmita : Ek sameekshatmak adhyayan.* BHU. Dr. B.N. Singh, Department of Philosophy, Banaras Hindu University, Varanasi.

Religion

1. Naresh Kumari. *Guru Nanak Dev kee dharam Sadhna.* Panjab. Prof. M.P. Bhardwaj, Department of Hindi, Panjab University, Chandigarh.

2. Saini, Gurbachan Singh. *An ecological study of Guru Nanak's word (Bani).* Panjab. Dr. Darshan Singh, Department of Guru Nanak Sikh Studies, Panjab University, Chandigarh.

Fine Arts

1. Srivastava, Santosh Kumar. *Purvi Bharat kee madhyakalin mrittika kala.* BHU. Prof. R. Das Gupta, Department of History of Fine Arts, Banaras Hindu University, Varanasi.

Sculpture

1. Ahir, Lal Jeet. *Ancient Indian sculpture.* BHU. Dr. Harihar Singh, Department of Ancient Indian History, Culture and Archaeology, Banaras Hindu University, Varanasi.

Drawing & Painting

1. Keswani, Radha. *Bharatiya sangrahon mein paschatya chitra.* BHU. Prof. R. Das Gupta, Department of History of Arts, Banaras Hindu University, Varanasi.

2. Srivastava, Ranjana. *Kathak, its origin and development : Based on a study of Ancient and medieaval paintings.* BHU. Dr. T. Biswas, Department of History of Arts, Banaras Hindu University, Varanasi.

Music

1. Boonmanam, Chalermsak. *A study of musical instruments described in the Pripitaka and in their relationship to Thai Musical Instrument.* BHU. Dr. Ritwik Sanyal, Department of Vocal Music, Banaras Hindu University, Varanasi.

Language & Literature

English

1. Bhandari, Rajni. *Humanism in the novels of E.M. Forster.* Devi Ahilya. Dr. S.S. Chandel, Principal, Govt. Arts and Commerce College, Indore.

2. Bhatnagar, Nitin. *A psychological study of man-woman relationship in the plays of Eugene O'Neill.* Devii Ahilya. Dr. S.S. Chandel, Principal, Govt. Arts and Commerce College, Indore.

3. Dubey, Ashutosh. *Women characters of Thomas Hardy and Sharatchandra : A comparative study.* Devi Ahilya. Dr. S.S. Chandel, Principal, Govt. Arts and Commerce College, Indore.

4. Gayathri Devi, S. *Man and environment in the novels of Patrick White, Margaret Laurence and Thakazhi Sivasankara Pillai with special reference to Voss, The Stone Angel and Chemmeen.* Kerala. Dr. K. Ayyappa Panicker, Prof., Institute of English, University of Kerala, Trivandrum.

5. Giri, Panchanan. *Lillian Hellman : A study of realism in her plays.* BHU. Dr. A.P. Barat, Department of English, Banaras Hindu University, Varanasi.

6. Jangam Sudhir. *Transcendence and affirmation in the novels of Joyce Carol Oates.* BHU. Dr. Sushila Singh, Department of English, Banaras Hindu University, Varanasi.

7. Jayalakshmy, P.K. *S. Menon Marath : A socio-cultural approach.* BHU. Dr. Jancy George, Lecturer, Institute of English, University of Kerala, Trivendrum.

8. Karumanchi, Vijaya Kumar. *Contemporary reality in John Updike's novels.* BHU. Dr. Sushila Singh, Department of English, Banaras Hindu University, Varanasi.

9. Krishnankutty Nair, K.P. *The rhetoric of ideological commitment : A stylistic enquiry into the plays of Edmund Bond.* Kerala. Shri S.V. Iyer, Reader, Institute of English University of Kerala, Trivandrum.

10. Mahajan, Mukta. *A study of prose style of Earnest Hemingway with special reference to his novels.* Devi Ahilya. Dr. S.S. Chandel, Principal, Govt. Arts and Commerce College, Indore.

11. Pawar, Smita. *T.S. Eliot : The exploration of the meaning and purpose of life through his poetry and plays.* Devi Ahilya. Dr. R.K. Bajpai, Prof. and Head. Department of English, Govt. Arts and Commerce College, Nhow.

12. Rai, Anuradha. *The psychological tengle in Anitha Desai's fiction.* Kerala. Shri S.V. Iyer, Reader, Institute of English, University of Kerala, Trivandrum.

13. Rai, Dauji. *The plays of W.H. Auden and Ishenwood : A study in theme and technique.* BHU. Dr. Ramanand Rai, Department of English, Banaras Hindu University, Varanasi.

14. Sabiha Khatoon. *Edith Wharton : As a psychological realist.* HS Gour. Dr. S. Sivaraman, Lecturer, Department of English, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

15. Sahoo, Natabar, *Engene O'Neille : The theme of alienation in his plays.* BHU. Dr. J.B. Mishra, Department of English, Banaras Hindu University, Varanasi.

16. Shivshankar, Ragini. *Themes and technique in Christopher Fry's plays.* HS Gour. Dr. S. Sivaraman, Lecturer, Department of English, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

17. Singh, Awadh Bihari. *G.B. Shaw : A study of his novels.* BHU. Dr. S.R. Jalote, Department of English, Banaras Hindu University, Varanasi.

18. Smitha, P.G. *The private and the historical in post-war drama with special reference to select plays by Arthur Miller and John Osborne.* Kerala. Dr. V. Rajakrishnan, Reader, Institute of English, University of Kerala, Trivandrum.

19. Verma, Vandana. *Joseph Conrad : A study of his tales.* BHU. Prof. R.S. Sharma, Department of English, Banaras Hindu University, Varanasi.

20. Yadava, Hari Shankar. *The poetry of Nissim Ezekiel : A study in development.* BHU. Dr. S.N. Pandey, Department of English, Banaras Hindu University, Varanasi.

21. Yohan, Ermine Joseph. *The Hemingwayan novel : A study of structural patterns.* *D. Litt.* Devi Ahilya.

Sanskrit

1. Jha, Ram Kumar. *Linguistic study of Harvansha purana.* BHU. Prof. S.S. Mishra, Department of Linguistics. Banaras Hindu University, Varanasi.

2. Kikani, Hinam. *Adhunik Sanskrit natako.* Saurashtra. Dr. R.P. Mehta, Bahauddin Arts College, Junagarh.

3. Sharma, Sarvamangala. *Shri Samraj Dixit kee rachnaon ka sameekshatmak adhyayan.* Devi Ahilya. Dr. H.R. Dholkia, Principal, Govt. Sanskrit College, Indore.

4. Tankodara, Sudha D. *Hasyaras : Kavyama ane kavyashastrama.* Saurashtra. Dr. R.P. Mehta, Bahauddin Arts College, Junagarh.

5. Vora, Sonal D. *Panditraj Jagannath : Vyaktitva and vangmay.* Saurashtra. Dr. R.P. Mehta, Bahauddin Arts College, Junagarh.

Punjabi

1. Yashpal Kaur. *Adhunik kal 1850-1985 vich kirtaniyan, ragian, rabapian ate dhadian de gurmat sangeet nu den.* Panjab. Dr. Jatinder Singh. Govt. College, Mohali.

Hindi

1. Dubey, Anju. *Prem Chand ke upanyason mein Bhartiya samaj.* BHU. Dr. M.L. Tiwari, Department of Hindi, Banaras Hindu University, Varanasi.

2. Goswami, Ashoka Rani. *Samsamayik samasyaen : Mannu Bhandari ke katha sahitya ke sandarbh mein.* BHU. Dr. Ibba Gupta, Department of Hindi, Banaras Hindu University, Varanasi.

3. Gupta, Ashok Kumar. *Nai Kavita mein vyaktivadi pravittiyan.* BHU. Dr. Sukhdev Singh, Department of Hindi, Banaras Hindu University, Varanasi.

4. Joshi, Siddhi Prada. *Amritlal Nagar ke upanyason mein samajik chetna.* Banasthali. Dr. Sushila Rani Garg, Reader, Department of Hindi, Banasthali Vidyapith, Rajas-han.

5. Kalpana. *Samkaleen Hindi kavita : Vastu, vichar aur hilra.* BHU. Dr. S.N. Pandey, Department of Hindi, Bana-as Hindu University, Varanasi.

6. Maurya, Kalpana. *Chhayavadi kavya mein sanskritik hetana.* BHU. Dr. Kumud Prabha, Department of Hindi, anaras Hindu University, Varanasi.

7. Mishra, Aparna. *Kaviyitri Mahadevi Verma kee jeevan rishti.* BHU. Dr. Kumud Prabha, Department of Hindi, anaras Hindu University, Varanasi.

8. Mishra, Vinod Kumar. *Bhaktikaleen kaviyon kee dhna paddhati ka tulanatmak adhyayan : Kabir evam Tulsi vishesh sandarbh mein.* BHU. Dr. Ashok Singh, Depart-ent of Hindi, Banaras Hindu University, Varanasi.

9. Patel, Shiv Shankar. *Sanskritik chetana ke pariprekshya mein swatantrayottar upanyason kee bhumika.* BHU. Dr. K.N. Tiwari, Department of Hindi, Banaras Hindu University, Varanasi.

10. Rai, Beena. *Samkaleen sanskritik parivartan ke pariprekshya mein sathottary Hindi upanyas.* BHU. Dr. Chandra Kala Tripathi, Department of Hindi, Banaras Hindu University, Varanasi.

11. Ravindra Prasad. *Kamayani kee kavya bhasha aur rachnasheelata ka sandarbh.* BHU. Dr. Mangla Prasad, Department of Hindi, Banaras Hindu University, Varanasi.

12. Singh, Kamlesh. *Agyeya ke gadya sahitya mein adhunikta bodh.* BHU. Dr. S.K. Singh, Department of Hindi, Banaras Hindu University, Varanasi.

13. Srivastava, Vandana. *Agyeya aur mukti bodh kee bhasha ka tulnatamak adhyayan.* BHU. Dr. Kashi Nath Singh, Department of Hindi, Banaras Hindu University, Varanasi.

14. Tiwari, Indra. *Madhyakaleen Bhartiya samaj aur Ramcharit Manas.* BHU. Dr. Mangla Prasad, Department of Hindi, Banaras Hindu University, Varanasi.

15. Tiwari, Vijay Narayan. *Samkaleeen Hindi kahani mein vastu, vichar aur shilp.* BHU. Dr. C.K. Tripathi, Department of Hindi, Banaras Hindu University, Varanasi.

16. Tripathi, Madhulika. *Nari asmita ke ayam aur samkaleen Hindi katha lekhikayen, 1950-80.* BHU. Dr. Ramlal Sarraf, Department of Hindi, Banaras Hindu University. Varanasi.

17. Trivedi, Archana, *Pragatisheel Hindi kavita mein aam aadami kee avadharana.* BHU. Dr. Baliraj Pandey, Department of Hindi, Banaras Hindu University, Varanasi.

18. Verma, Shashi. *Krishna kavya dhara evam Bharatendu Harishchandra.* BHU. Dr. S K. Singh, Department of Hindi, Banaras Hindu University, Varanasi.

19. Verma, Usha. *Trilochan ka kav i karam.* BHU. Dr. Awadesh Pradhan, Department of Hindi, Banaras Hindu University, Varanasi.

20. Yadav, Manjula. *Soordas kee saundarya bhawana.* BHU. Dr. C.R. Yadav, Department of Hindi, Banaras Hindu University. Varanasi.

21. Yadav, Ram Adhar Singh. *Dr. Devraj aur unke upanyas.* BHU. Dr. Surya Narayan Dwivedi, Department of Hindi, Banaras Hindu University, Varanasi.

22. Yadav, Ram Awadh Singh. *Anchalik upanyason mein gramin nari.* BHU. Dr, Kashi Nath Singh, Department of Hindi, Banaras Hindu University, Varanasi.

23. Yadav, Ram Chandra Ram. *Madhyakaleen sanskritik chetana ke vikas mein soor ka sthan.* BHU. Dr. Ibha Gupta, Department of Hindi, Banaras Hindu University, Varanasi.

Urdu

1. Aquil Ahmad. *Taraqui pasand murannifee : Ek shamariati mutalia.* BHU. Dr. Rasheeda Khatoon, Department of Urdu, Banaras Hindu University, Varanasi.

2. Imteyaz Ahmad. *Mahnama Mathzan Isharia aur adabi khitmat.* BHU. Prof. H.C. Nayyar, Department of Urdu, Banaras Hindu University, Varanasi.

3. Nabijan. *Mashrahvl-e-adab-Urdu 1850 se 1900 tak.* BHU. Prof. H.C. Nayyer, Department of Urdu, Banaras Hindu University, Varanasi.

4. Rahman, Atiqur. *Abdul Majid Saryabadi : Hayat aur karname.* BHU. Dr. Zafar Ahmad, Department of Urdu, Banaras Hindu University, Varanasi.

5. Shamin Ahmed. *Jigar Muradabadi : Hayat aur karname.* BHU. Dr. Qamar Jahan, Department of Urdu, Banaras Hindu University, Varanasi.

Marathi

1. Suleman, Shaikh Meer Ishaq. *1885 to 1947 ya kalkhandateel Marathi va Urduteel rashtriya kavitancha taulnik, abhyas.* Shivaji. Dr. N.J. Phadkule, Sanganeshwar College, Solapur.

Persian

1. Vakeel Ahmad. *Prof. Noorul Hasan Ansari : Life and Persian works.* BHU. Dr. S.A.H. Jafaree, Department of Persian, Banaras Hindu University, Varanasi.

Arabic

1. Abdul Waheed. *Abdul Waheed Siddiqui : Life and works.* BHU. Dr. Naseema Farooqui, Department of Arabic, Banaras Hindu University, Varanasi.

Tamil

1. Thanammal, L. *A critical study on the commentry of the Nalayina diyauprabhasam.* Kerala. Dr. K. Subramany, Prof. and Head, Department of Tamil, University of Kerala, Kariavattom.

Telugu

1. Prasad, Swarna Malikarjuna. *Study of formation of secondary derivation in Telugu.* BHU. Dr. G. Trivikaramaiah, Department of Telugu, Banaras Hindu University Varanasi.

Geography

1. Jayaswal, Tripta. *Human resource development in Kalyanpur, Kanpur : A geographical study.* BHU. Dr. R.Y. Singh, Department of Geography, Banaras Hindu University, Varanasi.

2. Nagar, Anjali. *Applied physical geography : Planning and development of Ranikhet.* BHU. Dr. Hem Priya Devi, Department of Geography, Banaras Hindu University, Varanasi.

3. Pal, Anil Kumar. *Structure of transport network and area development.* BHU. Dr. D.N. Singh, Department of Geography, Banaras Hindu University, Varanasi.

4. Sharma, Bhaiya Kishorilal. *Rewa Jile ke grameen adivas : Ek bhogolik adhyayan.* Devi Ahilya. Dr. A.A. Abbasi, 170, Saifi Nagar, Indore.

History

1. Arora, Sarita. *Status and role of women in the religion and socio-economic systems of Ancient India.* BHU. Prof. V.C. Srivastava, Department of Ancient Indian History, Culture & Archaeology, Banaras Hindu University, Varanasi.

2. Choudhary, Amita. *Bharatpur and East India Company : A study, 1803-1947.* Banasthali. Dr. Prakash Vyas, Lecturer, Department of History, Banasthali Vidyapith, Banasthali.

3. Pandey, Krishna. *Pracheen Bharat mein antrrajiya sambandh evam rajnitik avdharna ka itihasik vivechan, 600 B.C. to 600 A.D. tak.* Banasthali. Dr. K.P. Sharma, Prof. and Head, Department of History, Banasthali Vidyapith, Banasthali.

4. Sharma, Seema. *Rajshekar ka Bharat.* BHU. Prof. J.N. Tiwari, Department of Ancient Indian History, Culture and Archaeology, Banaras Hindu University, Varanasi.

5, Singh, Pramod Kumar. *State and Society in Ancient India.* BHU. Prof. M. Jauhari, Department of Ancient Indian History, Culture and Archaeology, Banaras Hindu University, Varanasi.

6. Sugeetha, G. *Economic development of Travancore under Sri Mulumthimnal.* Kerala. Dr. T.K. Raveendran Vice-Chancellor, University of Calicut, Calicut.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Library & Information Science

1. Batta, Rashmi. *Library Science education in India and United Kingdom : A comparative study since 1947.* Panjab.

Psychology

1. Chattopadhyay, Aparna. *Linkages of personality with organisational and communication patterns in two agricultural organisations : A comparative system's view.* Delhi.

2. Choudhari, Manjulata. *Arousal : State or trait.* HS Gour. Dr. H.S. Asthana, 255/79, Kundri, Rakobganj, Lucknow.

3. George, A.P. *Relationship of religiosity to adjustment.* Kerala. Dr. V. George Mathew, Reader, Department of Psychology, University of Kerala, Kariavattom.

4. Sahni, Vinod Bala. *A comparative study of job involvement and job satisfaction among managers in organisations under Indian and Japanese managerial system.* Delhi.

5. Sharma, Gopi Chandra. *A study of parents of educable mental retardates with reference to their personality and attitude towards the child.* Durgawati. Dr Jai Prakash, Prof. and Head, Department of Psychology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

6. Tiwari, Prabha Shanker. *A comparative study of goals of male and female college students.* Magadh.

Sociology

1. Nair, Sobha B. *Social security and the weaker sections.* Kerala. Dr. G. Narayana Pillay, Prof., Department of Sociology, University of Kerala, Kariavattom.

2. Sathianesan, V. *Social change in Kanyakumari District, 1900-1975 : A critical study in the perspectives of economic*

history. Bharathidasan.

3. Singh, Preeti. *Antrajatiya vivah ka natedari evam jati sanrachana per prabhav : Ek samaj shastriya vishleshan.* HS Gour. Dr. N.K. Gourha, Head, Department of Sociology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

4. Sood, Sneh Lata Devi. *Martial power, structure, fertility and family planning : A social and demographic study.* Panjab.

Political Science

1. Chakraborty, Rathin. *The changing world and the future of Marxian revolution.* Rabindra Bharati.

2. Chaturvedi, Sanjay. *Geopolitics of Antarctica : A new catalyst in international politics.* Panjab.

3. Gouragopal Singh, L. *Local self government in Manipur, 1891-1981,* Gauhati. Dr. Niru Hazarika, Prof. and Head, Department of Political Science, Gauhati University, Guwahati.

4. Krishnanandan Prasad. *Role of political elite in decision making at microlevel : A case study of Asthwah Block.* Magadh.

5. Kukreja, Veena. *Civil-military relations in South Asia with special reference to Pakistan, Bangladesh and India.* Delhi.

6. Prasad, Sushila. *Civil administration of cantonments : A Case study of the Dinapore Cantonment Board.* Madagh.

7. Sanyal, Balai Kumar. *Empiricism and society.* Rabindra Bharati.

8. Singh, Raj Kumar. *Different aspects of district politics in India.* Magadh.

9. Varma, Shanta. *The super powers and India's international disputes, 1900-1965.* Delhi.

Economics

1. Balar, V.G. *Economics of dry farming : A case study of Gujarat.* Bhavnagar. Dr. R.S. Mehta.

2. Birendra Prasad. *Area development and district planning in Bihar.* Magadh.

3. Chakraborty, Sonali. *Urban fertility in Assam : A case study of Dibrugarh Town.* Dibrugarh. Dr. H. Goswami, Reader, Department of Economics, Dibrugarh University, Dibrugarh.

4. Geetha, S. *Rural industrialisation in Tiruchirapalli District : Problems and prosects, a case study of synthetic gem cutting industry.* Bharathidasan.

5. Hathi, T.R. *Impact of operation flood I and II on Gujarat's economy.* Saurashtra. Dr. V.H. Joshi, Prof., Department of Economics, Saurashtra University, Rajkot.

6. Jain, Nirmal Kumar. *Analysis of profitability companies n India.* Rajasthan. Dr. N.P. Agarwal, Show Room No. B-2, Near Laxmi Mandir Cinema, Tonk Road, Jaipur.

7. Lakshmanan, S. *A study of agro industrial integration ith reference to sugar industry in Tamil Nadu.* Bharathiar. r. S. Sankaran, Prof. (Retd), Department of Economics, obi Arts College, Gobichettipalayam.

8. Mann Singh, *Spatial variations in value productivity on ndividual farms in the paddy-wheat belt of the Panjab State.* AU.

9. Rakesh, Sunil Kumar. *Role of cooperative institutions rural development : A case study of Nalanda District.* agadh.

10. Singh, Ram Janam. *Development of minor irrigation l its impact on agriculture : A case study of Bihar during an period.* Magadh.

Law

1. Nagabhooshanam, P. *Social justice and weaker sections : Role of Judiciary.* CUST. Dr. P. Leelakrishnan, Prof. and Head, Department of Law, Cochin University of Science and Technology, Cochin.

Education

1. Ambasana, A.D. *Construction and standardisation of an art judgement test.* Saurashtra. Dr. D.A. Uchat, Prof., Department of Education, Saurashtra University, Rajkot.

2. Christal Flory, J.W. *A study of underachievement in Mathematics of University entrants with a view to developing a guidance profile.* Kerala. Dr. Mercy Abraham, Prof., Department of Education, University of Kerala, Trivandrum.

3. Gautam, Gyan Prakash. *A study of effectiveness of games and sports as related to the development of high school students' personality, attitudes and values.* Meerut.

4. Maiyani, J.P. *A study of the development preprimary education in Gujarat during post independence period.* Bhavnagar. Dr. M.D. Trivedi.

5. Sundararajan, S. *An evolution of the teaching of Biology at the higher secondary stage in Timil Nadu.* Annamalai.

6. Tewari, Urmila. *Educational philosophy of J. Krishnamurti and its implications for modern system of Indian education.* Panjab.

Commerce

1. Dubey, Sanjeev. *Madhya Pradesh Niryat Nigam : Sangthan, karyapranali avam uplabdhiyon ka mulyakan.* HS Gour. Prof. R.K. Bharti, Head, Department of Commerce, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

2. Lakhanpal, Ajay K. *Institutional framework for entrepreneurial development in Himachal Pradesh.* HP.

3. Rajagopalan, B. *Housing and house finance : A critical analysis with reference to South Arcot District.* Annamalai.

4. Subbarayudu, Veluguri. *A socio-economic study of non-captive limestone mine workers in Guntur District of Andhra Pradesh.* Andhra.

Home Science

1. Jain, Santosh. *Studies on integrated education in nutrition with special reference to the impact of nutrition/health education on poor communities.* Delhi.

Management

1. Shekdar, A.V. *Systems analysis of solid waste management : Some studies in Indian context.* IISc.

2. Shrestha, Shree Krishna. *Managerial styles and their effectiveness in public sector manufacturing enterprises in Nepal.* Delhi.

3. Tagat, Ramesh Gopinath. *Formulation of balanced strategy for Indian coir industry.* Karnatak. Prof. C.B. Tigadi, (Retd), Kud 'Sangam' Saptapur Road, Dharwad.

4. Yadav, Keshar Dev. *Operational efficiency in India Tourism Development Corporation Hotels in India with special reference to Rajasthan.* Rajasthan. Dr. D.C. Jain, Department of Accountancy and Business Statistics, University of Rajasthan, Jaipur.

UNIVERSITY OF MADRAS

UNIVERSITY CENTENARY BUILDINGS, CHEPAUK, MADRAS-5

Applications are invited by the Registrar, University of Madras, Chepauk, Madras-600 005, upto 2.5.1989 for the posts of Research Officer, Senior Research Investigator and Junior Research Investigator in Agro Economic Research Centre, of this University. Those who have already applied for the above posts based on the earlier advertisement have to apply afresh.

Scale of Pay and Post

Research Officer	— 1 Post — Rs. 2200-75-2800-100-4000
Senior Research Investigator	— 1 Post — Rs. 1340-75-1715-90-2435
Junior Research Investigator	— 1 Post — Rs. 1160-50-1460-70-1950

Qualification

Research Officer : (Equated to the post of Lecturer of the University) A first or second class post-graduate degree in the subject Agricultural Economics or Economics with not less than 50% of marks of Grade 'B' under grading system, a Ph.D. degree in the subject, with not less than 5 years of research experience in drafting of research reports, independently.

Senior Research Investigator : A first or second class post-graduate degree in the subject Agricultural Economics or Economics with not less than 50% of marks or grade 'B' under grading system, in the subject with not less than 5 years of research experience.

Junior Research Investigator : A first or second class post-graduate degree in the subject, Agricultural Economics or Economics with not less than 50% of or Grade 'B' under grading system, with not less than 3 years of research experience.

The rules of reservations for open competition (32%) Backward Class (50%) and Scheduled Castes/Schedule Tribes (18%) will be followed and also communal roster system adopted for the cadre of Lecturer only.

The Syndicate reserves the right (1) to decide on reservations for the particular department for each post, and (2) to fill up consequential vacancy if any.

Further details regarding qualifications, field of specialisation and other requirements for these posts and specimen copy of application form may be obtained from the Registrar, University of Madras, Chepauk, Madras-600 005, on requisition together with a self-addressed stamped envelope for Rs. 3/-.

Requisition for applications should be made so as to reach this office on or before 5 p.m. on 2.5.1989.

N.B : 1. Applications should be made only in the form prescribed by the University.
2. Applications received after the last date will be summarily rejected.
3. Candidates Abroad may apply in plain paper, enclosing their Bio-data (8 copies).
4. Candidates with outstanding academic/research record will be considered for higher start in the scale.

APPLICATION REGISTRATION FEE

A registration fee of Rs. 10/- will be charged for each category of post viz. Research Officer, Senior Research Investigator and Junior Research Investigator for all applicants except those belonging to Schedule Castes and Scheduled Tribes. The candidates should remit the fee only by means of Demand Draft drawn in favour of the Registrar, University of Madras, Chepauk, Madras-5, towards Registration Fee.

N.B : Applications received after the last date and without registration fee will be summarily rejected.

The appointment to the post(s) will in the first instance be for a period of two years on probation. The question of further continuance or confirmation will be decided on satisfactory completion of the probation.

Applications from candidates who are above 50 years of age will not ordinarily be considered. The selected candidates will be required to enter into an agreement with the University in accordance with the laws of the University on joining the post.

Applicants for the post(s) are required to forward their applications (8 copies) in the prescribed form (Specimen enclosed) containing full particulars as to age with an attested copy of the first page of S.S.L.C. Book, qualifications, degrees (with year or years of passing and University in which the degrees were taken), other academic distinctions, publications if any (which will not be returned), present occupation and salary with scale of pay and languages with which the applicant is conversant together with copies of recent testimonials and names of two persons to whom a reference can be made.

The enclosures with regard to (1) true copy of the first page of the SSLC book in evidence of age; (2) reprints of available papers; and (3) a list of papers published by the applicants should also be sent along with the 8 copies of applications.

Applications from candidates who are in service will be considered only if forwarded through proper channel. In such cases advance copies (7 Nos.) of applications should be sent direct to the Registrar so as to avoid delay. Applicants if required, should be prepared to come for an interview at Madras at their own cost. Applicants who attempt to canvass or bring influence to bear personally or by letter will be disqualified. No travelling or any other allowances will be paid for joining the post.

Applications should be addressed to the Registrar, University of Madras, Chepauk, Madras-5, and should be superscribed at the left hand top corner of the envelope "Applications for the post of...........".

REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY : DELHI

HAUZ KHAS : NEW DELHI-110016.

Advt. No. IITD/PGS/1/89

Dated : 6.4.1989

NOTICE FOR ADMISSION TO PH.D., M. TECH. AND M.Sc. PROGRAMMES

Applications are invited for the following Post-graduate programmes at IIT Delhi for the session commencing from July, 1989. Detailed information is given in the Information Brochure which will be supplied along with the application form :

1. DOCTOR OF PHILOSOPHY (PH.D.) (FULL-TIME, SPONSORED AND PART-TIME)

(i) **Engineering Departments**
Applied Mechanics, Chemical Engineering, Civil Engineering, Computer Science and Engineering, Civil Engineering, Electrical Engineering, Mechanical Engineering and Textile Technology.

(ii) **Science Departments**
Chemistry, Mathematics and Physics.

(iii) Department of Humanities and Social Sciences.

(iv) **Inter Disciplinary Centres**

Bio-Chemical Engineering Research Centre, Centre for Atmospheric Sciences, Centre for Biomedical Engineering, Centre for Energy Studies, Centre for Material Science & Technology, Centre for Management Studies, Centre for Rural Development & Technology, Instrument Design Development Centre, Industrial Tribology, Machine Dynamics & Maintenance Engineering Centre, Centre for Applied Research in Electronics.

Minimum Qualifications for Admission

Master's degree in Engineering/Technology/Sciences/Humanities in respective discipline or equivalent with a minimum GPA of 6.75 on a 10-point scale or equivalent (as determined by IITD) where latter grades are awarded or 60.00% aggregate marks, where marks are awarded.

In exceptional cases, candidates with B.Tech. degree or equivalent with excellent record (GPA of 7.50 on a 10-point scale or 70.00% marks) will be considered eligible for admission.

Relaxation upto GPA of 6.20 or 55.00% marks in minimum qualifying criteria may be permitted for SC/ST candidates. Sponsored candidates and those with M.A. degree in English for Ph.D. in English in the Department of Humanities & Social Sciences.

Institute Scholarship for Full-Time Students

(a) Regular Students with M.Sc./M.A./B.Tech. or equivalent qualification will be eligible for scholarship @ Rs. 1800/- per month, and

(b) Candidates with M.Tech /M.E. or equivalent degree will be eligible for scholarship @ Rs. 2400/- per month as per rules of the Institute.

2. MASTER OF TECHNOLOGY (FULL-TIME, SPONSORED AND PART-TIME)

M.Tech. Programmes are offered by the following Departments/Centres.

Applied Mechanics, Chemical Engineering, Chemistry, Civil Engineering, Electrical Engineering, Humanities & Social Sciences, Mechanical Engineering, Maths, Physics, Textile Technology, Computer Science & Engineering, Bio-Chemical Engineering Research Centre, Centre for Energy Studies, Industrial Tribology, Machine Dynamics & Maintenance Engineering Centre, Centre for Material Science & Tech., Centre for Management Studies, Physics & Electrical Engineering (Combined).

Minimum Qualifications for Admission

(i) **For Full-Time Candidates**

Candidates must have Valid GATE Score.

(ii) **For Sponsored and Part-time Candidates**

Bachelor's degree in Engineering/Technology or Master's degree in Sciences in the relevant field with GPA of 6.75 on a 10-point scale or equivalent (as determined by the IITD) where latter grades are awarded or 60.00% aggregate marks where marks are awarded. Relaxation upto GPA of 6.20 or 55% marks in minimum qualifying criterion may be permitted for Sponsored Candidates.

Scholarship

Candidate must have a Valid GATE score for the award of Institute Scholarship of Rs. 1000/- p.m.

3. MASTER OF SCIENCE

M.Sc. Programmes are offered by the Chemistry, Mathematics and Physics Department of the Institute.

Minimum Qualifications

B.Sc. (Hons)/B.Sc./B.A. in relevant field with a GPA of 6.75 on a 10-point scale or equivalent (as determined by IITD) where letter grades are awarded or 60.00% aggregate marks where marks are awarded.

Scholarship and Freeship

Merit-cum-means Scholarship/Freeship are permissible to M.Sc. Students as per Institute rules.

General Information

(i) Candidates called for Ph.D. Programmes will be paid to and fro second class railway fare by shortest route. However, this provision will not apply to Sponsored and Part-Time Candidates.

(ii) For Ph.D., M.Tech. and M.Sc. Programmes, 15% of the seats for SC and 7-1/2% for the ST candidates are reserved.

(iii) Three seats are reserved for Physically Handicapped persons for admission to M.Tech. and Ph.D. Programmes together.

How to Apply

Application form and Information Brochure can be obtained from the Asstt. Registrar (PGS) by sending application fee of Rs. 15/- by a crossed Bank Draft or Indian Postal Order only in favour of IIT Delhi payable at New Delhi, alongwith a self-addressed envelope (25 cm x 11 cm) affixing postage stamps worth Rs. 1.40. Application Forms can also be had from the Counter (Room No. AD-236) against Bank Draft/IPO for Rs. 15/-. The No. and date of the Bank Draft/IPO should be Mentioned by the candidates at the Appropriate Column while Subsequently Submitting the Printed Application Form/Testimonials.

The completed applications should be sent by the candidates direct to the Asstt. Registrar (PGS), IIT, New Delhi-110 016. Those who wish to apply for admission to more than one Department/Centre should make separate application with prescribed fee.

Interim Enquiries will not be entertained.

Last Date for supply of Application Forms (By Post/At Counter)	**12.5.89/19.5.89.**
Last Date for receipt of completed Application Forms	**24.5.89.**

इन्दिरा गांधी राष्ट्रीय मुक्त विश्वविद्यालय, नई दिल्ली
INDIRA GANDHI NATIONAL OPEN UNIVERSITY NEW DELHI

YMCA, CULTURAL CENTRE, 1, JAI SINGH ROAD, NEW DELHI-110001.

Advt. No. 7/Admn./89

Dated : 10 04.1989

Applications are invited from Indian Citizens possessing the requisite qualifications for filling up the following posts in the pay scales shown against each plus allowances as admissible under the University rules.

1. DEPUTY DIRECTOR (Graphics)

Scale of Pay : Rs. 1200-50-1300-60-1900 (PR)

Qualifications

A Essential.

1. Master's Degree of a recognized University. OR Degree or Diploma in graphics/photography/design/animation from a recognized University or Institute.
2. Atleast 8 years professional experience in graphics/photography/design, of which atleast 5 years should be in a media/advertising/educational organization.

B. Desirable

1. Practical experience in planning, production and utilization of graphics in media.
2. Specialization in T.V. graphics.

2. DEPUTY DIRECTOR (Resource Planning)

Scale of Pay : 1200-50-1300-60-1900 (PR)

Qualifications

A. Essential

1. First or second class Master's Degree of a recognized University, preferably in Mass Communication / Communication / Educational Technology/Distance Education/Business Administration.
2. At least ten years experience in planning and production of TV/Radio programmes of whhich atleast five years should be in responsible position in a broadcasting organization.

B. Desirable

1. Experience in resource planning for media production.
2. Experience in production of educational television/Video programmes.
3. Training in production management,

3. PRODUCERS

Scale of Pay : Rs. 700-1600 (PR)

Qualifications

A. Essential

1. Master's Degree of a recognised university preferably in Mass Communication/Communication/Instructional Technology/Distance Education/Journalism.
2. At least 5 years experience in planning and production of Radio/T.V. programmes.

B. Desirable

1. Practical experience in production of educational radio/TV programmes.
2. Ability to handle a variety of subjects and formats for production of radio/TV programmes including plays, features, documentary, etc.

4 PROGRAMME OFFICERS (Broadcast)

Scale of Pay : Rs. 700-1600 (PR)

Qualifications

A. Essential

1. First or second class Master's Degree of recognised University.
2. Atleast 5 years experience in planning and production of TV/Radio programmes.

B. Desirable

1. Practical experience in production of TV/Radio programmes.
2. Ability to handle variety of subjects and formats for production of TV/Radio programmes.
3. Training in educational media production in a reputed institution or abroad.
4. Experience of working in an Educational Media Production Centre.

5. ASSISTANT REGISTRARS

Scale of Pay : Rs. 2200-4000

Qualifications

A. Essential

A postgraduate degree with at least 55% marks or its equivalent grade.

B. Desirable

Experience in areas like registration and evaluation.

6. ASSTT. REGIONAL DIRECTORS/ASSTT. DIRECTORS

Scale of Pay : Rs. 2200-4000

Qualifications

A. Essential

1. Good academic record with atleast Second Class ('C' in the seven point scale) Master's Degree from an Indian University or an equivalent degree from a Foreign University.
2. Possessing research experience or having attained a degree in M.Phil or has practical experience of not less that 2 years in a research organisation.

B. Desirable

Preference will be given to persons who have experience and proven ability in imparting education through multimedia and innovations in distance teaching methods and material preparation.

7. TECHNICAL ASSISTANTS/CONSOLE OPERATORS

Scale of Pay : Rs. 1400-40-1800-EB-50-2300

Qualifications and Experience

A. Essential

Bachelor's Degree in any discipline

B. Desirable

Experience of working in a computer environment and ability to use popular PC-Software to produce required reports.

C. Age limit : 30 years as on 1.4.89.

8. STENOGRAPHERS (SC/ST Candidates Only)

Scale of Pay : Rs. 1200-2040

Qualifications

A. Essential

Matriculation or equivalent with 2 years experience as Steno-Typist / Stenographer in Government / Semi-Government, or a reputed private concern with 80/30 wpm speed in Shorthand and Typewriting respectively.

B. Desirable

A good University Degree with experience as Stenograqher

Age Limit : 30 years as on 1.4.89.

9. ASSISTANTS

Scale of Pay : Rs. 1200-2040

Qualifications

A. **Essential**

A good University Degree with 5 years experience in secretarial/administrative work in a Government/Semi-Government or a reputed private concern.

B. **Desirable**

Knowledge of typewriting and ability to type own notes.

Age Limit : 30 years, as on 1.4.89.

10. **JUNIOR ASSISTANT-CUM-TYPISTS**

Scale of Pay : Rs. 950-1500

Qualification

A. **Essential**

Matriculation or equivalent with 2 years experience in a Government/Semi-Government, Public Undertaking or a reputed private concern, with a typing speed of 30 wpm.

B. **Desirable**

A University degree with a typing speed of 30 wpm.

Age limit : 25 years as on 1.4.89.

GENERAL CONDITIONS

The University reserves the right to (i) relax any of the qualifications in exceptional cases and/or in the case of persons already holding comparable positions in a University/Research Institution (ii) consider names of suitable candidates who may not have applied, on the recommendations of the Selection Committee (iii) not to fill up any of the vacancies advertised if the circumstances so warrant. (iv) Candidates will be selected on the basis of suitable written test/skill tests to be held in Delhi or any other place should the number of candidates so warrant. Candidates qualifying in the tests/found eligible, will be called for interview by the Selection Committee to be held in Delhi. (v) 15% and 7½% of the posts are reserved for SC/ST candidates respectively. (vi) **Only candidates for posts No. 1 to 6 and SC/ST candidates called for interview from** outside Delhi will be paid single second class railway fare to and fro Delhi by the shortest route from their place of residence (vii) The selected candidates may be posted either in the University offices in Delhi or in any of its Centres located all over India.

HOW TO APPLY

Applications on the prescribed form (obtainable from the office of the Registrar (Administration) at YMCA Cultural Centre 1 Jai Singh Road, New Delhi-110001. in person or on a written request by post and accompanied by a self-addressed envelope (size 13 cms × 28 cms) and bearing postage stamps of Re. 1.00 received in the University Office before 19.5.89) and complete in all respects along with attested copies of degrees, other certificates/marks sheets/experience etc. should reach the Registrar at the above address on or before **01.06.1989.** Applications received late, or incomplete in any respect and in the case of those in Government/Semi-Government/Universities not received through proper channel, will not be considered at all.

REGISTRAR

G.B. PANT UNIVERSITY OF AGRICULTURE & TECHNOLOGY

PANT NAGAR-263145

NOTICE

In partial modification of the Admission Notice issued in the month of January/February, 1989, for Admission to different U.G. and P.G. programmes of the University, it is hereby notified that the admission to B.Sc. Forestry programme of this University will also be made on the basis of the same Entrance Test. No separate application will be required and the candidates who are eligible for B.Sc. Forestry programme will have the option of admission to B.Sc. Forestry programme according to their choice and merit. The schedule for examination shall remain unchanged.

S.C. Malaviya
COORDINATOR (Admissions)

SANJAY GANDHI POST GRADUATE INSTITUTE OF MEDICAL SCIENCES LUCKNOW

CORRIGENDUM TO ADVT. NO. 64/89

SELECTION OF SENIOR RESIDENTS

It is notified for general information that two candidates will also be selected for D.M. Nephrology as a result of Test scheduled for May 21st, 1989, at S.G.P.G.I. campus. D.M. course will commence in July 1989. All other terms and conditions remain unchanged.

Last date for candidates applying for D.M. (Nephrology) only stands extended to **April 30, 1989.**

Prof. B.B. Sethi
DIRECTOR

CLASSIFIED ADVERTISEMENTS

ANNAMALAI UNIVERSITY
RAJAH MUTHIAH INSTITUTE OF HEALTH SCIENCES
(Non-grant Institution)

Notification No. 1(S)/89

Applications are invited in the prescribed form for the following posts in the Rajah Muthiah Medical College of this University :

Sl. No.	Name of the Post	No. of Post
1.	Professor of Pathology	1
2.	Professor of Social and Preventive Medicine	1
3.	Professor of Medicine	1
4.	Professor of Physical Medicine & Rehabilitation	1
5.	Professor of Obstetrics & Gynaecology	1
6.	Professor of T.B. & Chest Diseases	1
7.	Professor of Dermatology	1
8.	Professor of E.N.T.	1
9.	Professor of Psychiatry	1
10.	Professor of Radiology	1
11.	Reader in Anatomy	1
12.	Reader in Bio-Chemistry	1
13.	Reader in Pharmacology	2
14.	Reader in Pathology	2
15.	Reader in Microbiology	1
16.	Reader in Forensic Medicine	1
17.	Reader in Nuclear Medicine	1
18.	Reader in Social and Preventive Medicine	2
19.	Reader in Radiology	3
20.	Reader in Anaesthesiology	1
21.	Lecturer in Anatomy	1
22.	Lecturer in Physiolagy	1
23.	Lecturer in Pharmacology	2
24.	Lecturer in Pathology	3
25.	Lecturer in Forensic Medicine	1
26.	Lecturer in Social and Preventive Medicine	1
27.	Lecturer in Rural Health Centre	1
28.	Lecturer in Urban Health Centre	1
29.	Lecturer-cum-Epidemiologist	2
30.	Lecturer in Medicine	3
31.	Lecturer in Nuclear Medicine	1
32.	Lecturer in Surgery	2
33.	Lecturer in Obstetrics & Gynaecology	3
34.	Lecturer in T.B. & Chest Diseases	1
35.	Lecturer in Dermatology	1
36.	Lecturer in Orthopaedics	1
37.	Lecturer in Radiology	1
38.	Lecturer in Casuality Medical Unit	2
39.	Antenatal Medical Officer-cum-Lecturer	1
40.	Maternity & Child Welfare Officer-cum-Lecturer	1
41.	Physicist (Radiology)	1

Qualifications

Professor : Applicant should have 4 years of teaching experience as Reader in a Medical College, besides the prescribed educational qualifications.

Reader : Applicant should have 5 years of teaching experience as Lecturer in a Medical College besides the prescribed educational qualification.

Educational Qualification

For Sl. No. 1 : M.D. (Pathology)/M.D. (Pathology & Bacteriology)/M.D. (Pathology with Bacteriology)/Ph.D. (Pathology) D.Sc. (Pathology).

For Sl. No. 2 : M.D. (Social & Preventive Medicine)/ Community Medicine/M.D. (Medicine) with D.P.H.

For Sl. No. 3 : M.D. (Medicine)/M.D. (General Medicine).

For Sl. No. 4 : M.S. in General Surgery / M.S. (Orthopaedics) with two years special training in the speciality of physical Medicine and Rehabilitation (Rehabilitation Medicine) or two years of equivalent training approved in the subject In any approved Institution in India.

For Sl. No. 5 : M.D. (Obstetrics & Gynaecology) / M.S. (Obstetrics & Gynaecology)/M.S. (Mid. & Gynaecology)/M.O.

For Sl. No. 6 : M.D. (Tuberculosis)/M.D. in Medicine with T.D.D. D.T.D. or D.T.C.D.

For Sl. No. 7 : M.D. (Dermatology & Venereology) M.D. (Medicine) with D.V.D., D.D.

For Sl. No. 8 : M.S. (Oto-Rhino-Laryngology).

For Sl. No. 9 : M.D. (Psychiatry)/M.D. (Psychological Medicine)/M.D. in Medicine with Diploma in Psychological Medicine.

For Sl. No. 10 : M.D./M.S. (Radiology).

For Sl. No. 11 : M.S. (Anatomy)/MBBS with M.Sc. (Anatomy)/Ph.D. (Medical Anatomy)/D.Sc. (Medical Anatomy).

For Sl. No. 12 : M.D. (Bio-Chemistry)/MBBS with M.Sc. (Medical-Bio-Chemistry) Ph.D. (Medical Bio-Chemistry)/D.Sc. (Medical Bio-Chemistry).

For Sl. No. 13 : M.D. (Pharmacology)/M.D. (Pharmacology Therapeutics)/MBBS with M.Sc. (Pharmacology)/Ph.D. (Medical Pharmacology)/D.Sc. (Medical Pharmacology).

For Sl. No. 14 : M.D. (Pathology)/M.D. (Pathology & Bacteriology)/M.D. (Pathology with Bacteriology) Ph.D. (Pathology)/D.Sc. (Pathology).

For Sl. No. 15 : M.D. (Bacteriology)/M.D. (Microbiology)/M.D. (Bacteriology with Pathology)/M.D. (Pathology & Baceteriology) / MBBS with M.Sc. (Medical Microbiology)/Ph.D. (Medical Microbiology/Ph.D. (Medical Bacteriology) / D.Sc. (Medical Bacteriology)/D.Sc. (Medical Microbiology).

For Sl. No. 16 : M.D. (Forensic Medicine).

For Sl. No. 17 : M.D. (Nuclear Medicine)/M.D. (Radio-Therapy)/M.D. in Medicine with D.R.M. or 2 years special training in Nuclear Medicine.

For Sl. No. 18 : M.D. (Social and Preventive Medicine)/Community Medicine) / M.D. (Medicine) with D.P.H.

For Sl. No. 19 : M.D, / M.S. (Radiology).

For Sl. No. 20 : M.D. (Anaesthesiology)/M.S. (Anaesthesiology).

For Sl. No. 21 : M.S. (Anatomy)/MBBS with M.Sc. (Anatomy) / Ph.D. (Medical Anatomy) / D.Sc. (Medical Anatomy).

For Sl. No. 22 : M.D. (Physiology)/MBBS with M.Sc. (Physiology)/Ph.D. (Medical Physiology) / D.Sc. (Medical Physiology).

For Sl. No. 23 : M.D. (Pharmacology)/

M.D. (Pharmacology & Therapeutics)/ MBBS with M.Sc. (Pharmacology)/Ph.D. (Medical Pharmacology)/D.Sc. (Medical Pharmacology).

For Sl. No. 24 : M.D. (Pathology)/ M.D. (Pathology & Bacteriology)/M.D. (Pathology with Bacteriology) / Ph.D./ D.Sc. (Pathology).

For Sl. No. 25 : M.D. (Forensic Medicine).

For Sl. No. 26 : M.D. (Social & Preventive Medicine) / Community Medicine)/M.D. (Medicine) with D.P.H.

For Sl. No. 27 : M.D. (Social and Pre-

For Sl No. 28 : ventive Medicine) / (Community Medicine)/M.D. (Medicine with D.P.H.

For Sl. No. 29 : MBBS, D.P.H.

For Sl. No. 30: M.D. (Medicine)/M.D. (General Medicine).

For Sl. No. 31 : M.D. (Nuclear Medicine) / M.D. (Radio-Therapy) / M.D. in Medicine with D.R.M. or 2 years special training in Nuclear Medicine.

For Sl. No. 32 : M.S. (Surgery)/M.S. (General Surgery).

For Sl. No. 33 : M.D./M.S. (Obstetrics & Gynaecology) / M.D. / M.S. (Mid. & Gynaecology)/M.O.

For Sl. No. 34 : M.D. (Tuberculosis)/ M.D. in Medicine with T.D.D., D.T.D. or D.T.C.D.

For Sl. No. 35 : M.D. (Dermatology & Venerelogy)/M.D. (Medicine) with D.V.D., D.D.

For Sl. No. 36 : M.S. (Orthopaedics), M.Ch. (Orth.).

For Sl. No. 37 : M.D. / M.S. (Radiology).

For Sl. No. 38 : MBBS with M.D./M.S.

For Sl. No. 39 : MBBS with D.G.O. (Desirable : 2 years experience in Maternity Hospital).

For Sl. No. 40 : MBBS with D.C.H. (Desirable ; 1 year experience in a Neonatal Unit or Children's Hospital).

For Sl. No. 41 : M.Sc. Physics or Bio-Physics in Ist Class with or without Ph.D.

Scale of Pay

Professor : Rs. 4500-150-5700-200-7300 with admissible allowances.

Reader : Rs. 3700-125-4950-150-5700 with admissible allowances.

Lecturer : Rs. 2200-75-2800-100-4000 with admissible allowances.

Candidates, if selected, should serve for a specified period.

Higher start will be considered keeping in view long experience, special qualifications, etc.

Caadidates invited for interview for the posts of Professor and Readers will be paid a single second class to and fro railway fare.

Those who are in service should route their applications through proper channel.

Application forms can be had from the undersigned on payment of Rs. 10/- by Cash/Money Order/Postal Order (Not refundable). Filled in applications (with 5 additional copies) should reach the undersigned on or before 5-5-1989.

REGISTRAR

TAMIL UNIVERSITY

THANJAVUR

Advt. No. 4207/88/A1 **Dated : 5-4-89**

Applications in the prescribed form in quadruplicate are invited for the following temporary posts which may continue for a period of three years for the proposed Centre for South Indian Culture. Last date for the receipt of applications in the prescribed form is 31.5.89.

Research Associates

(1) Anthropology
(2) Painting
(3) Folklore
(4) Architecture
(5) Music & Drama

Scales of Pay : (U.G.C. Scale)

Eligibility

Research Associateships are intended for persons preferably below the age of 45 years who have doctorate degree and have published research work to their credit and have already shown evidence of independent research work. In case of women candidates the age limit is 55 years.

The required application forms, etc. may be obtained by sending a written requisition with clear postal address accompanied by Bank Demand Draft to the value of Rs. 25/- (Rupees Twenty five only). Rs. 15/- for SC/ST candidates drawn in favour of the Finance Officer, Tamil University, Thanjavur 613 001 payable at Thanjavur.

All requisitions however should be addressed to the Registrar, Tamil University, Thanjavur accompanied by a self-addressed cover bearing postage stamps to the value of Rs. 2.60. The cost of the application blanks will not be refunded under any circumstances.

The University reserves the right to reject any application without assigning any reason, if otherwise found unsuitable.

Dr. P. Chinnian
REGISTRAR

ALL INDIA INSTITUTE OF SPEECH & HEARING

MANASAGANGOTHRI
MYSORE-570 006

Advt. No. 3/89

Applications are invited for the following posts :

1. **Lecturer in ENT** —1 post
   (Reserved for SC*)
2. **Lecturer in Clinical Psychology** —1 post
   (Reserved for ST*)

Scale of Pay : Rs. 2200-75-2800-100-4000/- +NPA for Medical post.

* General Candidates would be considered if there are no suitable SC/ST candidates.

3. **Research Assistant** —1 post
   (Speech & Hearing)

Scale of Pay : Rs. 1400-40-1600-50-2300-EB-60-2600/-

Application form along with full details regarding educational qualification, experience, age, allowance etc., may be obtained from the Institute on payment of Rs. 2/- each (Re. 1/- for SC/ST) either in cash or through Indian Postal Order by sending self-addressed and stamped (Re. 1.40) envelope (9" x 4"). The last date for receipt of application is 15.5.1989.

DIRECTOR

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